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PETER PARLEY'S
ILLUSTRATIONS OF

COMMERCE.

Samuel Griswold Goodrich

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PREFACE.

By Commerce I mean the exchange of commodities for other articles, or for some representative of value, for which other commodities can be procured. At first, commerce consisted merely in exchanging the surplus of some particular article of produce, which an individual possessed beyond what he found necessary for his own use, for the similar surplus of some other article possessed by another individual, which kind of traffic is now generally called barter. By the introduction of metallic and paper money, the operations of commerce were much facilitated, while the increase of population rendered them of greater magnitude. Improvements in the art of navigation extended their boundaries, the advancement of science and increase of luxury multiplied the objects of trade, and the various duties and regulations established by different governments rendered the subject more complicated to individuals, but at the same time of increased importance to the state.

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The advantages of commerce began to engage the attention of mankind at a very early period. About thirteen hundred years after the flood, the commerce of the Phenicians had attained to a considerable extent; they possessed manufactures, entered into commercial partnerships, made long voyages, had resident agents in foreign countries, and lent and borrowed money. The Greeks and Romans, particularly the latter, carried on an extensive trade, considering the imperfect state of navigation. The cultivation of vines in France, Spain, and Portugal was early commenced; and from the inhabitants neglecting to cultivate corn, and turning much of their arable land into vineyards, we may presume the latter afforded considerable profit.

About the year 50, the capital of England was first described as a place famous for merchandise. In the ninth century, the Venetians carried on a very beneficial commerce with the Levant, whence they brought spices, silks, drugs and fruits from the East, in great abundance, and supplied the greater part of Europe with these commodities. The crusades contributed materially to the revival of commerce during the twelfth and thirteenth centuries, by introducing an acquaintance with the luxuries of the East, which multiplied the objects of trade. About this time, the commercial towns bordering on the coast of the Baltic, finding their trade much interrupted by pirates, entered into an agreement for mutual support and assistance. This union, which became very celebrated under the title of the Hanseatic League, at first consisted of only twelve towns, but finally of upwards of seventy, including all the principal commercial places of Europe, and embracing nearly all the foreign trade then carried on.

The invention of the mariner's compass, which enabled trading vessels to make much longer voyages, and led to a discovery of a passage to the East Indies by the Cape of Good Hope, with the settlements made on the coast of Africa, in Arabia, and in India, affected very materially the commerce of the Mediterranean and the Hanse towns, and threw the principal part of the foreign trade into the hands of the Portuguese. The discovery of America opened a new and extensive field for commercial adventure, while the establishment of manufactures produced new articles of trade. The persecutions of the Spaniards drove great numbers of industrious workmen from the Netherlands into England, and other countries, who introduced several manufactures into Great Britain, and greatly improved others, which were already established.

While the different branches of Britain's manufactures were thus improving, its colonial possessions in the East and West Indies were greatly increased, and England was enabled to rival the Dutch, not only in manufactured goods, but also in the principal articles of colonial produce. During the last century, the trade of Holland rapidly declined; and the decided naval superiority maintained by Great Britain extended and raised her commerce to a magnitude unparalleled in the history of the world. The natural advantages arising from the situation of England, and her extensive colonial possessions, particularly in the East Indies, have favored and protected her commercial intercourse; while the accumulated capital of individuals has gradually enabled them to give very considerable credit to their customers, which of late years has been of much importance in increasing the commerce of Great Britain to its present extent.

The American war produced a memorable effect on the commerce of the world. Scarcely were we freed from our allegiance to Great Britain, than our commercial enterprise and resources began to develop themselves. Our ships began to penetrate to the most distant seas, and to bring home with them the produce of every clime. It soon became a common thing for an American merchantman to make a voyage round the world, starting from some port in the United States, going round Cape Horn to the north-west coast of America, taking in furs, sailing to China, and going thence with tea, &c. to the ports of Europe.

Various causes have contributed to direct the attention of a large portion of our population to commercial pursuits. With a sea-coast two thousand miles in extent, and indented with many fine harbors, it was natural that many of the inhabitants should betake themselves to the sea for a subsistence. Excellent timber for ship-building being likewise abundant, seemed to hold out another temptation to a great portion of the people.

Near the shores of the Northern States, and on the adjacent banks of Newfoundland, are fishing stations, unsurpassed by any in the world. Fishing is consequently a lucrative employment, in proportion to the capital invested, and constitutes the occupation of many of the inhabitants of those states. The fishermen having become accustomed to a seafaring life, and acquired the requisite skill and knowledge, soon pass into larger vessels, destined for more distant and perilous voyages.

The state of the world, for several years subsequent to the commencement of the French revolution, offered great encouragement to the commercial enterprise of the country. While almost every other power was engaged in war, the United States were neutral; their vessels navigated the ocean in safety, and were employed to carry, from port to port, the commodities of those nations which were at war. Our commercial prosperity is now established on a broad, and, I trust, an enduring basis.

DICTIONARY OF COMMERCE.

ABACA: a kind of hemp or flax, made from the fibrous part of an Indian plantain. The white makes very fine cloth, and the gray is used for cordage and cables.

ACACIA: a species of Egyptian thorn-tree, from which gum Arabic is obtained.

ACHIA: a sort of cane, which grows in the East Indies, is pickled green, and sent to Europe in jars.

ADAMANT: an ancient name for the diamond. It is also sometimes used for a very hard species of iron, and for the magnet or loadstone.

AGATE: a gem, which takes its name from the river Achates, in Italy, on the banks of which it is found. It is chiefly composed of crystal, colored by a large quantity of earth. Agates are found in different parts of America. They sometimes are marked with natural representations of animals, trees, letters, &c.

AIGRIS: a stone, which serves instead of current coin, among the Issinais, a nation of Africa, on the coast of Guinea, where the river Asbin runs near the Gold Coast. It is of a greenish blue color, and the natives give for it its weight in gold.

ALABASTER: a kind of stone resembling marble, but much softer. It is found in England, and in some parts of the United States.

ALCANNA: a drug used in dyeing, which comes from Egypt and other parts of the Levant.

ALCOHOL: a spirit, which,

when pure, is perfectly the same, whether obtained from brandy, wine, or any other fluid, which has undergone the spirituous fermentation. It is a colorless liquid, extremely inflammable, and burns with a pale blue flame, scarcely visible in bright day-light. Alcohol is a slow poison when taken internally.

ALE: a fermented liquor obtained from an infusion of malt. It is a very ancient liquor, and is said to have been invented by the Egyptians. It differs from strong beer chiefly in having a less proportion of hops.

ALKALIES: a class of saline substances, possessing in general the following properties: — They have an acrid taste; they change the blue juices of vegetables to a green, and the yellow to a brown color; and they will render oil miscible with water. With acids they form neutral salts.

ALKANET: a dyeing drug, which grows naturally in the Levant. The root imparts an elegant red color to oily substances, and improves the color of mahogany.

ALMONDS: a kind of fruit contained in a hard shell, which is enclosed in a tough cottony skin. Almonds are of two kinds, sweet and bitter; the Jordan almond is of the best quality, and the bitter almonds are mostly from Barbary. The best almonds are from Malaga. The oil extracted from the bitter almond is said to be a remedy in cases of deafness.

ALOES: the juice of the plant aloe, produced in most of the hot climates.

ALQUIFOU, or ARQUIFOUX: a sort of leaden ore, which, when broken, looks like antimony. It is used by potters to give a green varnish to their works.

ALUM: a mineral substance, composed of a peculiar earth termed *alumine*, and sulphuric acid. It is sometimes found in a native state, but most of that met with in commerce is artificially prepared. Alum is much used in dyeing, and for a variety of medicinal purposes.

AMBER: a transparent and very hard inflammable substance, of a bituminous taste, fragrant smell, and highly electric. It is of a pale straw color, but it is often made white and sometimes black. It is principally to be met with on the sea-coasts of Prussia. The river Giaretta, in Sicily, which takes its rise on the north side of Mount Etna, throws up near its mouth great quantities of fine amber. Some pieces contain flies and other insects curiously preserved.

AMBERGRIS: a substance found floating in the sea near the coasts of various tropical countries, and also taken from the intestines of the spermaceti whale, where it is supposed to originate. Its color is a dingy white; its odor is agreeable, and in the state of an alcoholic solution it is used as a perfume.

AMBER SEED: a small odoriferous seed, used as a perfume.

AMETHYST: a gem of a purple color, which in its purest state is of the same hardness, and at least of equal value with the ruby or sapphire. It is found in the East and West Indies, and in several parts of Europe.

AMMONIA: an alkaline substance, which may be obtained from all bodies in a state of putrefaction. Sal ammoniac is applied to many useful purposes, and it is consumed in considerable quantities by dyers, coppersmiths and tinners.

ANATA, or ANNOTTO: a kind of buff-colored dye, which has acquired the name of Nankeen, from Nangking in China, whence the calico so colored was first exported. It is brought from Brazil.

ANCHOR: a large and heavy iron instrument, with a double hook at one end, and a ring at the other, used for mooring vessels. It is cast into the bottom of the sea, or rivers, where taking its hold, it keeps ships from being drawn away by the wind, tide, or current. The parts of which an anchor is composed are the ring into which the cable is fastened, the beam or shank, which is the longest part of the anchor, the two arms, at the end of which are the two flooks or flukes, by some called the palms, which with their barbs fasten into the ground, and the stock, which is a large piece of wood fastened across the beam near the ring, and serving to guide the flukes in a direction perpendicular to the surface of the ground; so that one of them sinks into it by its own weight as soon as it falls, and is still preserved steadily in that position by the flock, which, together with the shank, lies flat on the bottom. In this situation it must necessarily sustain a great effort before it can be dragged through the earth horizontally. Should the anchor be displaced, it is said, in the sea phrase, "to come home."

There are several kinds of anchors: 1. The sheet anchor, which is the largest, and is never used but in violent storms, to hinder the ship from being driven ashore. 2. The two bowers, which are used for ships to ride in the harbor. 3. The stream anchor. 4. The grapnel.

ANCHOVIES: the name of a small fish, common in the Mediterranean. It is much used in sauces from the excellence of its flavor.

ANIL: the plant from which indigo is made.

ANINGA: a root which grows in the Antilles islands, and is used for refining sugar.

ANISE: a small seed of an oblong shape. It is cultivated in this country, but the best comes from Spain.

ANTHRACITE: the name of one of the most useful kinds of coal. It is found in different parts of Europe, but abounds in the United States. See Coal.

ANTIMONY: a substance separated by fusion from a very hard and heavy lead-colored metal, which has a sparkling appearance when freshly broken. It is employed in medicine and in coloring glass, and is also used in the composition of type-metal.

AQUAFORTIS: nitric acid in a diluted state. It is used by dyers and calico-printers.

ARANEA: a silver ore found only in Potosi, and in the single mine there of Catamito.

ARGOL: tartar, or the lees of wine, used by dyers.

ARRACK: a strong spirituous liquor, distilled from rice, sugar-cane, or the juice of the cocoa-nut. The last, which is most esteemed, comes from Batavia; the others from Goa.

ARROW-ROOT: a white nutritious substance, manufactured from the roots of a plant which grows in the East and West Indies. The arrow-root from Bermuda is of a fine quality.

ARSENIC: a metal of a light blue color. It is one of the most active of mineral poisons, and a very small quantity will destroy life.

ASBESTOS: a kind of mineral substance, of a woolly texture, endued with the property of resisting fire. It is found in India, and in different parts of Europe. Pliny, an ancient writer, says he has seen napkins made of asbestos, which, being taken foul from the table, and thrown into the fire, were by that means rendered as clean as if washed in water.

ASPARAGUS: a well-known plant, the heads of which are useful for the table, and the roots in medicine. It was formerly an item of considerable commerce, but its roots as a medicine have been superseded by more powerful or fashionable ingredients.

ASPHALTOS: a solid, brittle substance, of a red or dark color, easily inflammable, and of a strong bituminous smell. The best comes from Judea, where it is gathered on the Dead Sea. It is used among the Egyptians in embalming and preserving dead bodies.

ASPHALTUM: a bituminous stone, found generally near the ancient Babylon, and used in the composition of cement, for joining stone or brick-work under water, being impenetrable by that fluid. An oil is extracted from it, which may be made into a sort of pitch, and advantageously used in caulking ships and vessels.

ASPIC: an oil drawn from a plant, which grows in France. It is used by painters in the mixing of colors; also by farriers and other artificers. It is likewise of use in medicine. It is very inflammable, and when once on fire it is almost impossible to extinguish it.

ASSA-FŒTIDA: a compact, gummy substance, brought from Persia and the East Indies. It smells like garlic, but much stronger, and has a bitter taste. It is used in medicine as a stimulant.

ASSIGNEE: in law, a person appointed by another to do and act, transact some business, or enjoy a particular commodity. Assignments are most commonly applied to those creditors of a bankrupt who are appointed by the rest to manage for them, and consequently have the bankrupt's estate assigned over to them.

ASTRINGENTS: substances distinguished by a rough, austere taste, and the power of changing solutions of iron, especially those made in sulphuric acid, into a dark purple or black color.

ATLAS: a book of universal geography, containing maps of all parts of the known world.

AUTOM: a sort of bark which resembles cinnamon, but is paler and thicker; it is the color of a broken nutmeg, and full of spangles. It comes from the Levant, and is an ingredient in the carmine dye.

AVOIRDUPOIS: a weight, having sixteen ounces to the pound, in distinction to Troy weight, which has only twelve.

B.

BAIZE: a sort of coarse open woollen stuff, sometimes friezed and sometimes not. It is manufactured chiefly in England.

BALE: a pack or certain quantity of goods or merchandise, as a *bale* of silk, cloth, &c. The bales are always marked and numbered, that the merchants to whom they belong may know them; and the marks and numbers correspond to the same in the bills of lading.

BALLAST: a quantity of stones, gravel, pigs of lead, sand, or any other heavy material, laid in a ship's hold, in order to make her draw the more water, and render her stiffer, or more capable of carrying sail, without oversetting. Ships are said to be in ballast when they have no other loading.

BALM OF GILEAD: the dried juice of a small tree or shrub, which grows in several parts of Abyssinia and Syria. By the inhabitants of Syria and Egypt, this balsam was in great esteem from the remotest periods of antiquity. We are informed by Josephus, the Jewish historian, that the balsam of Gilead was one of the trees which was given by the Queen of Sheba to King Solomon. The Ishmaelitish merchants, who were the purchasers of Joseph, are said to have been travelling from Gilead, on the eastern side of Canaan, to Egypt, and to have had their camels laden with "spicery, balm and myrrh." It was then, and is still considered one of the most valuable medicines that the inhabitants of those countries possess. The quantity of balsam yielded by one tree never exceeds sixty drops in a day. Hence its scarcity is such that the genuine balsam is seldom exported as an article of commerce.

BALSAM: an oily, resinous, liquid substance, flowing either spontaneously, or by means of incision, from certain plants. All the turpentines, the Peruvian balsam, copaiba, &c. are examples of natural balsams. Many medicines, compounded of various resins or oils, have obtained the name of balsams. The most important balsams are those of Tolu and Peru—*storax* and *benzoin*, as they are named.

BAMBOO: a plant which multiplies very much by its root. The Indian bamboo is the largest kind of cane that is known.

BANDANNAS: silk handkerchiefs, generally red, spotted with white, manufactured in the East Indies.

BANK: a common repository, where many persons agree to keep their money, to be always ready at their call or direction; or certain societies or communities, who take the charge of other people's money, either to improve it or keep it secure. Generally a bank is established by a company of monied men, who, being duly incorporated by the laws of their country, agree to deposit a certain considerable fund, or joint stock, to be employed for the use of the society; as lending money on good security, buying and selling bullion, gold and silver, discounting bills of exchange, &c.

Banks are of three kinds, namely: of deposit, of discount, and of circulation. A bank of deposit receives money to keep for the depositor, until he draws it out. Another branch of the banking business is the discounting of promissory notes and bills of exchange, or loaning money on security. A bank of circulation issues bills or notes of its own, intended to be the circulating currency or medium of exchange, instead of gold and silver, which they represent. Most of the banks in this country unite all these several offices.

BANKRUPT. A trader is said to be bankrupt whose circumstances, being such that he is unable to pay his debts, force him to commit an act of bankruptcy, or to declare himself insolvent.

BARIGA: a species of raw silk, brought from the East Indies.

BARILLA: the name of a sea-plant which grows very plentifully on the coast of Spain. It abounds with soda; and the impure ashes of the plant, containing that salt in great abundance, form an important article of commerce. The ashes themselves are commonly called barilla. On the shores of the Mediterranean, where the preparation of soda is pursued to a considerable extent, the seeds of the plant from which it is obtained are regularly sown in places near the sea. These, when at a proper state of maturity, are pulled up by the roots, dried, and afterwards tied in bundles to be burnt. The greater part of the barillas, or crude sodas of commerce, are now obtained from the ashes of various sea-weeds, which manufacture is extensively prosecuted upon the shores of Scotland.

BARK, PERUVIAN: the produce of a tree which is the spontaneous growth of many parts of South America, but more particularly of Peru. The tree is said somewhat to resemble a cherry-tree in appearance, and bears clusters of red flowers. This valuable medicine was formerly called *Jesuit's bark*, from having been introduced into Europe by the members of that religious order, who were settled in South America. The bark is of three kinds—the red, the yellow, and the pale. The *crown-bark*, as the highest-priced is termed, is of a pale yellowish red. The medical properties of this bark are found to depend upon the presence of a substance called *quinine*.

BARLEY: a well-known species of grain. All sorts of malt liquor are extracted from it.

BARNACLES: a kind of shell-fish in the West Indies, that penetrate into the bottoms of ships, which they oftentimes damage so materially as to give the sheathing the appearance of a honey-comb.

BAROMETER: a machine for measuring the weight of the atmosphere.

BARRATRY. In commerce, it signifies a fraud or mistake committed by the master of a vessel against the owners. In marine insurance, one of the risks insured against is the barratry of the master or mariners. Whatever is done by the captain to defeat or delay the performance of the voyage is barratry in him, it being to the prejudice of the owners. But if the act of the captain be done with a view to the benefit of his owners, as by deviation for the purpose of saving the ship, or the like, and not to advance his own private interests, it is no barratry.

BAY-SALT: a salt made from the sea-water. See SALT.

BAZAAR: a place for trade among the Eastern nations.

BEACON: a post or stake erected over a shoal or sand bank, as a warning to seamen to keep at a distance. Also a signal placed at the top of hills, &c.

BEAR'S GREASE: the fat of the bear. It has become of late years something of an article of trade, and is used for softening and improving the hair.

BEEF. Of this article immense quantities are salted and made up in tierces, barrels, and half barrels, and sent to our sea-port towns for sale. It constitutes the staple provision for ships' companies at sea.

BEER: a common and well-known liquor, extracted principally from malt. Of barley, there are now about thirty million bushels annually converted into malt in Great Britain; and more than eight million barrels of beer, of which four fifths are strong beer, are brewed yearly. The manufacture of beer is likewise extensive in the United States.

BELL-METAL: a composition of tin and copper. Less tin is used for church bells than for clock bells; and in very small bells, a little zinc is added to the alloy.

BERGAMOT: the name of a fragrant essence extracted from a species of citron.

BERYL: a pellucid gem of a bluish green color, found in the East Indies and about the gold mines of Peru, and especially in Siberia and Tartary, where its crystals are sometimes a foot long. The beryl is ranked among the gems, but its value is trifling compared with the ruby, sapphire, topaz, &c.

BILL OF EXCHANGE. A bill of exchange is a security, originally invented among merchants in different countries, for the more easy remittance of money from one to the other. It is an open letter of request from one man to another, desiring him to pay a sum mentioned therein, either to his own order, or to a third person on his account; by which means a man in the most distant part of the world may have money remitted to him from any trading country. In common speech such a bill is often called a draft. The following may be the form of a bill of exchange:

Boston, *May* 10*th*, 1837.

$1000.

Twelve months after date, pay to Mr. Henry Herbert, or his order, one thousand dollars, for value received, and as advised by

Andrew Lawrence.

To Messrs. Lockhart, Smith & Co.,
London, England.

To use this bill, Mr. Herbert must find somebody, Mr. Brown, for instance, who owes as much money in London. Instead of sending that amount in cash across the Atlantic, this person will pay Herbert $1000, who will then give him this bill. Brown will then send it to London, to the person to whom he owed the money, who will present it at the proper time to Messrs. Lockhart, Smith & Co., and will receive the amount. So all parties will be accommodated, without running the hazard of losing the cash itself on the voyage, though some difference may exist by the value of money being greater in one place than in the other. Transactions of this kind are generally managed by persons called exchange brokers, who, being acquainted with the different merchants abroad and at home, can give the information which may be wanted, for which they are paid at a regular rate.

BILL OF LADING, is an acknowledgment signed by the master of a ship and delivered to a merchant, proprietor or factor of the goods shipped. It contains an account of the articles received on board, and a promise to deliver them at a certain place in good condition on certain terms. Bills of lading are made out in sets of three or four, one of which is retained by the shipper of the goods, another sent *per packet* to the consignee, the third forwarded to the same *per ship*, and the fourth given to the master of the ship.

BILL OF SALE, is a solemn contract, under seal, whereby a man conveys or passes away the right and interest which he has in goods or chattels.

BINNACLE: on shipboard, a square box placed before the man at the helm, and containing the compass, by which the ship is steered on her course.

BISMUTH: a heavy metal, of a much harder and firmer texture than antimony. It is of a fine bright silver color.

BLACKING: an article for polishing shoes, &c. The usual way of manufacturing it is as follows: Dissolve in one quart of hot vinegar one ounce and a half of brown sugar candy, and let it stand to be quite cold; rub four ounces of ivory black with one ounce of olive oil in a mortar till quite dry; mix all these ingredients together, and stir them frequently for twenty-four hours; *then* (but not *till then*, or it will spoil the whole) add to them one ounce of vitriolic acid, and stir the mixture well. Instead of olive oil and the vitriolic acid, common venders of blacking use oil of vitriol as being a cheap substitute; but it renders the stitches of the shoes rotten, and in time injures the leather itself.

BLACK LEAD: a mineral used in the manufacture of pencils, also for blackening the front of stoves, grates, &c.

BLOCKS: on shipboard, a piece of wood with running sheaves or wheels in it, through which the running rigging is passed to add to the purchase.

BLOCK-TIN: pure unmixed tin of the best quality.

BLOND-LACE is manufactured of silk, in imitation of thread-lace, and large quantities of it are made in France.

BOARDS: pieces of timber sawed thin for building and other purposes. The best pine boards come from Maine.

BOAT: properly, a vessel propelled by oars. In a more extensive sense, the word is applied to other small vessels, which differ in construction and name, according to the services in which they are employed. Thus they are light or strong, sharp or flat-bottomed, open or decked, &c., according as they are intended for swiftness or burden, deep or shallow water, &c. The barge is a long, light, narrow boat, employed in harbors, but unfit for sea. The long-boat is the largest boat belonging to a ship generally furnished with sails, and is employed for cruising short distances, bringing heavy articles on board, &c. The launch is more flat-bottomed than the long-boat, which it has generally superseded. The pinnace resembles a barge, but is smaller. The cutters of a ship are broader and deeper than the barge or pinnace, and are employed in carrying light articles, passengers, &c., on board. Yawls are used for similar purposes, and are smaller than cutters. A gig is a long, narrow boat, used for expedition, and rowed with six or eight oars. The jolly-boat is smaller than a yawl, and is used for going on shore. A merchant-ship seldom has more than two boats, a long-boat and a yawl. A wherry is a light, sharp boat, used in a river or harbor, for transporting passengers. A punt is a flat-bottomed boat, chiefly used for one person to go on shore from small vessels. A skiff is a small boat, like a yawl, used for passing rivers. A moses is a flat-bottomed boat, used in the West Indies for carrying hogsheads from the shore to ships in the roads. A felucca is a large passage-boat, used in the Mediterranean, with from ten to sixteen banks of oars. Scow is an American word, signifying a large, flat-bottomed, heavy boat, about thirty feet long, and twelve wide. In some parts of the United States it is called a gondola.

BOATSWAIN: on shipboard, the officer who has charge of the cordage, rigging, anchors, &c.

BOHEA: black tea. See TEA.

BOMBAZINE: a kind of silk and woollen stuff, originally manufactured at Milan, but now made in Great Britain and in this country.

BOND. A bond or obligation is a deed whereby the obligor or person bound, binds himself, his heirs, executors and administrators, to pay a certain sum of money, or do some other specified act.

BONNET, in a ship, are small sails, fastened or laced to the bottom of the mainsail and foresail, in light winds, to make them larger.

BOOK, BOOKS: a writing or treatise on some branch of literature or science, composed for the instruction or amusement of the reader. The term is likewise applied to blank books. Books are divided into the following classes, according to the mode in which the sheets of the paper on which they are printed are folded: namely, *folio*, when the sheet is folded into two leaves; *quarto*, when folded into four; *octavo*, when folded into eight; *duodecimo*, when folded into twelve, &c. In making these classifications, no attention is paid to the size of the sheet. *Copy-right* is the right which the authors or compilers of books or treatises claim to the exclusive privilege of printing and publishing them. The principal book-markets in this country are Philadelphia, New York and Boston. We are indebted to England for by far the greater portion of our current literature, and until the English author is admitted to the privilege of a copy-right, in which event his book cannot be afforded cheaper than that of an American author, the encouragement to native writers must continue meagre and inadequate.

BOOK-KEEPING: a mercantile term used to denote the method of keeping commercial accounts, of all kinds, in such a manner, that a man may thereby know, at any time, the true state of his affairs, with clearness and expedition. Book-keeping is divided into *single*, and *double*, or Italian book-keeping: the former method is generally employed by retailers of merchandise, and the latter by merchants and wholesale dealers. The books which the merchant wants are principally a *waste-book*, in which all his dealings are recorded without particular order; a *journal*, in which the contents of the waste-book are separated every month, and entered on the debtor and creditor sides; and a *leger*, in which the posts entered in the journal are placed under particular accounts, and from which, every year, the balance is drawn. The principle of the Italian system is, that all money and articles *received* become debtors to him from whom they are received, and, on the other hand, all those who receive money or goods in return become debtors to cash or to the goods. The person who owes me any thing is called my *debtor;* the person whom I owe is my *creditor;* the *balance* is the overplus or difference—so much as one side of the account exceeds the other.

There are other auxiliary books besides those named, which are used in proportion to the business a man transacts. These books are the cash-book, the bill-book, the invoice-book, the account-current-book, the letter-book, &c.

BORAX: a substance of a greenish color, brought from the East Indies in great masses.

BOXWOOD: a yellowish, compact wood, very heavy, and susceptible of a good polish. It is used for engraving, and in the manufacture of flutes, boxes, &c.

BRADS: a kind of nails used in building, which have no spreading heads, as other nails have.

BRANDY: a spirituous and inflammable liquor, extracted from wine and other liquors, and likewise from the husks of grapes by distillation. Brandy is prepared in many of the wine countries of Europe, but that most valued is made in Languedoc and other parts of the south of France, whence is the Cogniac brandy. Brandy is naturally clear and colorless as water. The different shades of color which it has in commerce arise partly from the casks in which it is kept, but chiefly from the addition of burnt sugar, saunders-wood, and other coloring matters that are added by the manufacturer, and which are neither of advantage nor disadvantage to the quality of the spirit. Brandy, like other ardent spirits, is a slow poison, the habitual use of which causes a slow inflammation of the stomach and liver, which proceeds steadily, and is often undiscovered till too late for relief.

BRAZIL-WOOD: a dye-wood of a red color and very heavy, which comes from Brazil. It is much used in turned work, and takes a good polish; but is chiefly used in dyeing.

BRASS: a factitious metal, made of copper and zinc in proper proportions. The use of brass is of great antiquity.

BRICKS are made of clay, mixed with sand or ashes, or with both. They are formed into shape by means of a wooden mould, and then baked or burnt. The great art in making bricks is in piling them so that the fire may circulate through every course and in every direction.

BRIGANTINE: a light small vessel, adapted either for fighting or for chase.

BRILLIANTS: the finest diamonds.

BRIMSTONE. See SULPHUR.

BRISTLES: the strong hair standing on the back of a hog or wild boar. They are put to various uses, particularly in making various sorts of brushes. Wild boars' bristles are much stronger than hogs', and are much more valued, but they are also much dearer. Bristles are principally imported from Russia.

BROCADE: a stuff composed of gold, silver or silk, raised and enriched with flowers, foliages and other ornaments.

BROKERS, EXCHANGE, are a kind of agents or negotiators, who contrive, propose and conclude bargains between merchants and between merchants and tradesmen, in matters of bills of exchange or merchandise, for which they have a certain commission. STOCK brokers are those employed to buy and sell shares in the joint stock of a company or an institution. *Brokerage* is a commission or percentage paid by merchants to brokers, either for the sale or purchase of goods, bills of exchange, stock, &c.

BRONZE: a compound metal, composed of from six to twelve parts of tin combined with a hundred parts of copper. It is used for the fabrication of cannon as well as medals.

BUCKRAM: a sort of coarse cloth, made of hemp, gummed and dyed.

BUCKWHEAT: a kind of grain,

which is much cultivated in the United States. From the flour a favorite cake is made.

BUFF: a sort of leather, prepared from the skin of the buffalo.

BULBS: the roots of several sorts of flowers, as tulips, hyacinths, of which large quantities are imported from Holland.

BULLION: uncoined gold or silver in the mass.

BUOY: a floating conical cask, moored upon shoals to show where the danger is; also used at anchors to show where they lie, in case the cable breaks.

BURGUNDY: a choice French wine, of a lively color and superior quality.

BURSTONE: a species of stone used by millers for grinding corn. Burstones are usually imported from Rouen, in France.

BUTT: a vessel or measure of wine, containing two hogsheads, or one hundred and twenty-six gallons.

BUTTER: a substance prepared from milk by the process of churning. The production and consumption of butter in this country are very great. The average produce per cow of the butter dairies is estimated at one hundred and sixty-eight pounds a year.

C.

CABLE: a thick, large, strong rope, or a chain of iron, which serves to keep ships at anchor. A *cable's length* is one hundred and twenty fathoms. *Pay more cable* is to let more out of the ship. *Slip the cable* is to let it run quite out, when there is not time to weigh the anchor. This is preferable to cutting it.

CACAO. See Cocoa.

CACHALOT: a large fish of the whale species, from the brain of which spermaceti is extracted.

CAJEPUT OIL: the volatile oil obtained from the leaves of the cajeput-tree, which is common on the mountains of Amboyna, and the other Molucca islands. It is of a green color, very limpid, lighter than water, of a strong smell resembling camphor, and of a pungent taste. It is believed to be efficacious in cases of cholera.

CALABAR SKIN: the Siberian squirrel skin, used in making muffs, tippets, and trimmings for cloths of various colors.

CALAMANCO: a woollen stuff, principally manufactured in the Netherlands, but also in England.

CALICO: a species of stuff made from cotton. It takes its name from Callicut, a city on the coast of Malabar, where it was first manufactured. In the East Indies, the calicoes are all painted by the hand, which is performed with great expedition. *Calico-printing* is the art of communicating different colors to particular spots or figures on the surface of the cloth, while the other parts retain their original whiteness. This art has been practised in India for more than 2000 years. In London, calico-printing was not introduced till about the year 1676. The art consists in impregnating those parts of the cloth which are to receive a color with a mordant, (see MORDANT) and then dyeing it as usual with some dye-stuff. The dye-stuff only attaches itself firmly to that part of the cloth which has received the mordant. The whole surface of the cotton is indeed more or less tinged, but by washing and bleaching it for some days on the grass with the wrong side uppermost, all the *unmordanted* parts resume their original color, while those that have received the mordant retain it. Suppose that a piece of white cotton cloth is to receive red stripes; all the parts on which the stripes are to appear are pencilled over with a solution of acetate of alumine; after this, the cloth is dyed in the usual manner with madder. When taken out of the dyeing vessel, it is all of a red color, but by washing and bleaching, the madder leaves every part of the cloth white, except the stripes impregnated with the acetate of alumine, which remain red. In the same manner may yellow stripes, or any other wished-for figure, be given to cloth, by substituting quercitron bark, weld, &c., for madder. When different colors are to be given to different parts of the cloth at the same time, it is done by impregnating it with various mordants. Thus, if stripes are drawn upon a cotton cloth with acetate of alumine, and other stripes with acetate of iron, and the cloth afterwards dyed in the usual way with madder, and then washed and bleached, it will be dyed *red* and *brown*. The same mordants with quercitron bark give *yellow* and *olive* or *drab*. The mordants chiefly employed in calico-printing are acetate of alumine and acetate of iron. These mordants are applied to the cloth either with a pencil or by means of blocks, whereon the pattern, according to which the cotton is to be printed, is cut. The following table will give an idea of the colors which may be given to cotton by these complicated processes:

I. *Madder Dye.*

	Colors.
Acetate of Alumine,	Red.
———— Iron,	Brown, black.
—————diluted,	Lilac.
Both mixed,	Purple.

II. *Bark Dye.*

Acetate of Alumine,	Yellow.
———— Iron,	Dove, drab.
Lilac and acetate of alumine,	Olive.
Red and acetate of alumine,	Orange.

III. *Indigo Dye.*

Indigo,	Blue.
Indigo and yellow,	Green.

Thus no less than twelve colors may be made to appear together in the same print by these different processes.

CAMBRIC: a species of very fine white linen, first made at Cambray, whence it derives its appellation.

CAMEL'S HAIR is chiefly used in the manufacture of pencils for drawing, painting, &c., whence the name of camel's hair pencils. The best camel's hair comes from Arabia.

CAMLET: a plain stuff, which is made of several colors and sorts; some of goat's hair, both in the warp and woof; others in which the warp is of hair, and the woof half hair and half silk; others again in which both the warp and the woof are of wool; and lastly, some of which the warp is of wool and the woof of thread. Camlets are manufactured principally in France and Great Britain.

CAMOMILE: a well-known plant, whose flowers are used for medical purposes. A strong sky-blue oil is distilled from them.

CAMPHOR: a tree which grows in China, Japan, and several parts of India. The wood and roots being boiled with water, the camphor rises with the steam, and is condensed in small granular crystals. Camphor is employed in the composition of varnish, of sealing-wax, and of fire-works. It is so inflammable as to preserve its flame in water.

CANAL: a kind of artificial river made for the convenience of water-carriage. Canal boats are generally of peculiar dimensions, suited to their particular purpose, and to nothing else. They are sometimes seventy feet long and only six feet wide, that they may be able to pass each other without requiring the canal to be of an inconvenient width. They will contain a very large quantity of goods, and may be drawn by a single horse with tolerable ease. The Hudson and Erie canal, through the State of New York, is the most extensive work of the kind in this country. Canals have of late years been superseded in a degree by railroads.

CANE: a reed, brought chiefly from the Indies. Some are without knots, and very smooth and even; that is, when the reed is grown so long that the distance between two knots is large enough to make a cane. Others are full of knots about two inches distant from each other. These last have very little elasticity, and will not bend so well as the others.

CANICA: a sort of spice which grows in the island of Cuba.

CANNEL-COAL: a solid, dry fossil, very hard, but easily inflammable, and burning with a bright, vivid white flame.

CANTHARIDES: flies of a shining green color, intermingled with blue and a golden yellow. They are commonly called *Spanish flies*, and are of an acrid, highly caustic taste, while fresh. They are found adhering to certain kinds of trees, in the warmer climates of Spain, Italy, and France, and sometimes in Germany. The largest and best come from Italy. They are killed by the steam of vinegar, and then dried in the sun. In medicine, they are used in making blisters.

CANVAS: a very clean unbleached cloth of hemp or flax, woven very regularly in little squares. It is useful chiefly to make sails for shipping, and much is brought from Russia.

CAOUTCHOUC. See INDIA-RUBBER.

CAPE: a promontory or headland running out with a point into the sea.

CAPER: a low shrub, generally growing out of the joints of old walls or fissures of rocks, in the warm parts of Europe. The *capers* sold in the shops are the full-grown buds of the flowers gathered before they blow, and spread in the shade till they begin to grow flaccid. Then they are put in a vessel, vinegar added to them, covered with a board, and let to remain for eight days; then, being taken out of the vessel, they are squeezed gently, and fresh vinegar added, and let to stand eight days more. This operation is repeated a third time. This done, the capers are put in a cask with vinegar, to which some add salt.

CAPITAL. Among merchants, bankers and traders, CAPITAL signifies the sum of money which a merchant at first puts into trade. It signifies likewise the fund of a trading company or corporation, in which sense the word *stock* is generally added to it. Thus we say the *capital stock* of the bank, &c.

CAPSICUM: Guinea pepper, of which there are three sorts.

CAPSTAN, in a ship, is a large piece of timber of the nature of a windlass, placed next behind the windlass. It is used to weigh the anchors, to hoist up or strike down topmasts, to heave any weighty matter, or to strain a rope.

CARAVEL, or CARVEL: a kind of light round ship. Hence the term *carvel-built*, applied to a ship.

CARBON: a substance, which has been found to exist in a state of absolute purity in the diamond. It is the base of common charcoal, which is an oxide of carbon.

CARBUNCLE: a precious stone of the ruby kind, of a very rich, glowing, blood-red color.

CARDAMOMS: seeds of a dark brown color and an aromatic smell, which are brought from the East Indies.

CARGO signifies all the merchandise and effects laden on board a ship, exclusive of the crew, rigging, provisions, &c.

CARMINE: a powder of a very beautiful red color, used by painters. The mode of preparing it is a pretended secret with the French, from whom we mostly obtain the article.

CARPETS: thick textures made wholly or partly of wool, and wrought in a variety of ways. Persian and Turkey carpets are most esteemed; though at Paris there is a manufactory after the manner of the Persian, where they are made of an equally valuable quality. There is a carpet manufactory at Lowell, which produces very handsome carpets. Excellent carpeting is exported from Brussels, in Germany.

CARRONADE: a short kind of ordnance, capable of carrying a large ball, and useful in close engagements at sea. It has its name from Carron, where it was first made, CASCARILLA: the bark of a tree growing plentifully in the West Indies. It is of a bitter, aromatic taste, and yields, when burning, an agreeable odor. It is used in medicine, and is an excellent tonic.

CASHIER: he who keeps the *cash*, or the money, which it is his business to receive and pay. In every bank, there must be an officer of this description.

CASSAVA: a mealy substance, derived from the root of a plant called magnoc, growing in the West Indies. From the pure flour of cassava is produced *tapioca*.

CASSIA: the bark of a tree which grows in the East and West Indies and in China. It is thicker and coarser than cinnamon, but of a similar taste. It is mostly imported from China.

CASTOR-OIL: an oil extracted from the seeds of a plant which grows in the Indies, as well as in the United States. Its use in medicine is well known.

CAT-GUT: a small string for fiddles and other musical instruments. It is made from the intestines of sheep and lambs, dried and twisted, either single or several together.

CAULKING is to drive oakum or spun-yarn, or something of that kind, into the seams of the planks of a ship, to keep the water out.

CAVIAR, or CAVIAL: the spawn or hard roes of sturgeon, salted and dried in the sun. It comes from Russia and the Mediterranean.

CAYENNE: red pepper, which derives its name from Cayenne in South America, of which it is a native.

CENT: an abridgment of centum, the Latin word for one hundred; also a well-known copper coin current in the United States. *Percentage* is a word generally used to signify an allowance of a certain sum on every hundred dollars, or a commission-money. When we say a bank or a company has made a dividend of *six per cent*, we mean that six hundredths of every dollar invested, or six cents on every hundred cents, have been paid to the stockholders.

CHALDRON: a dry English measure, consisting of thirty-six bushels.

CHALK: a white, dry, calcareous earth, used for a variety of well-known purposes.

CHAMBER OF COMMERCE

is an assembly of merchants and traders, where the affairs relating to trade are treated of. There are several establishments of this sort in most of the chief cities of France; and in our own country we have lately seen chambers of this kind erected.

CHAMPAIGN: the finest and most esteemed of French wines. This wine is of two sorts, the red and white, and is chiefly made in the environs of Ay, Cumieres and Haut-Villiers.

CHECKS: drafts on banks or on individuals holding money or property belonging to the individual drawing the check. Checks may be made payable to the bearer simply, or to his order.

CHEESE: the curd of milk separated from the whey, and hardened by a slow heat. Cheeses are manufactured to a great extent in this country; but those most esteemed are brought from Holland.

CHINA-WARE. See Porcelain.

CHINTZ: fine printed calico, first manufactured in the East Indies, but imitated in other countries.

CHOCOLATE: a kind of cake, or hard paste, which is prepared chiefly from the pulp of the cacao or chocolate nut, a production of the West Indies and South America. When the cacao is properly roasted, and well cleaned, it is pounded in a mortar, to reduce it to a coarse mass, which is afterwards ground on a stone, till it is of the necessary fineness. The paste being sufficiently ground, it is put into tin moulds, in which it congeals in a very little time. Sometimes vanilla and cinnamon are added to give it a flavor.

CHRONOMETER: a time-piece of a peculiar construction, much used by navigators in determining the longitude at sea.

CIDER: a liquor extracted from the juice of apples, and constituting an article of considerable produce in this country.

CIGARS: leaves of tobacco rolled into a shape for smoking. The best are manufactured in Havana.

CIMOLIA: the name of the white earth of which tobacco-pipes are made.

CINNABAR: a ponderous mineral substance, of which vermillion is made. The best comes from the East Indies.

CINNAMON: the under bark

of the branches of a tree of the bay tribe, which is chiefly found in the island of Ceylon, but which grows in Malabar and other parts of the East Indies.

CITRON: an agreeable fruit, resembling a lemon in color, smell and taste. It comes to us preserved or candied from Madeira of the finest quality.

CIVET: a perfume taken from the civet cat.

CLARET: a French red wine, made in the neighborhood of Bourdeaux.

CLOVE: the unexpanded flower-bud of an East Indian tree, somewhat resembling the laurel in its height and in the shape of its leaves.

COAL. Coal, in some cases, appears to have been originally vegetable matter, and, by long burial in the earth, to have been soaked with bitumen, till its very substance has been changed; for sometimes it has been found but partially changed, with the fibrous formation yet discernible. More commonly, however, it seems to have been some earthy substance, thus impregnated and changed by petroleum or some oily matter.

Anthracite coal is found in great abundance in the United States, where it is an article of increasing importance. This coal, owing to the absence of bituminous ingredients, is inflammable with some difficulty, and burns without smell or smoke.

In Pennsylvania, the anthracite coal formation covers a tract of country many miles in width. Mauch Chunk, upon the Lehigh, Pottsville, at the head of the Schuylkill canal, and Wilkesbarre, upon the Susquehannah, have afforded the chief supply of coal from this region, as well as the greatest proportion consumed in the United States. Much of this coal is transported from the mines by means of railroads.

At Portsmouth, in Rhode Island, an extensive bed of this coal exists; and mines of anthracite have been opened at Worcester and at Mansfield, in Massachusetts.

The names given to coal are various, and are generally taken from the places where it is found. Most of the bituminous coal consumed in the Eastern States is brought from Liverpool; although considerable quantities are brought from Nova Scotia, called Pictou and Sydney coal.

England is highly favored by this kind provision of fuel, suited to her cold climate, and especially necessary for a manufacturing country. For ages, indeed, wood was the only kind of firing in use; and as the island was anciently so much covered with timber, the commodity did not become scarce. As, however, population increased, and corn was wanted, the forests were cut down, and the land brought under culture, so that in some districts fuel became scarce and dear.

Newcastle upon Tyne, in Northumberland, is a principal coal country. The coal mines at Whitehaven, in England, are very wonderful. You enter at the bottom of a hill, and pass an amazingly long way among huge galleries, where the roof is propped up by vast pillars of coal, left for that purpose, nine feet high, and thirty-six feet thick. The mines sink to the depth of 7 or 800 feet. They run under the sea to a great extent; so that large ships sail over the miners' heads.

Besides the general gloominess of working so far under ground, the miners are liable to several dangerous accidents: foul air, which suffocates and kills; and the fire-damp, which catches if any flame comes near it, and explodes like a volcano, and burns sometimes for a long while. As this foulness takes fire only from flame, a machine was invented which produced a stream of sparks, by a wheel of flints striking against steel; which glimmering light sufficed for the workmen.

Sir Humphrey Davy afterwards discovered that the foul air was too thick to pass between close iron wires; he therefore invented a lamp to be enclosed in a case of wire gauze; so that although the light passed through this wire work readily, the fire-damp lodged on the outside and was perfectly harmless. This is a very important safeguard to the miners, for the accidents have been tremendous and destructive.

COASTING: that part of navigation where the ship sails in sight of land.

COBALT: a metal found in the form of an ore in Saxony, Sweden and some parts of England.

COCHINEAL: a small insect, seldom exceeding the size of a grain of barley. It is found in Mexico, Georgia, South Carolina, and some of the West India Islands, but it is in Mexico only that it is reared with care and forms an important article of commerce. For a considerable time after it began to be imported into Europe, it was believed to be a sort of vegetable grain or seed. It is principally used in the dyeing of scarlet, crimson and other bright colors.

COCOA, or CACAO: a nut of an oblong figure, resembling a large olive in size and shape, from which chocolate is made.

COCOA-NUT: a large nut, the produce of a tree called *cocos*, which grows in the Indies. Large quantities are annually imported into this country.

COD: a well-known fish, that is caught in immense quantities on the banks of Newfoundland, and the other sand-banks that lie off the coasts of Cape Breton, Nova Scotia and New England. Grand Bank, the great sand-bank on which the cod-fish are taken, is represented as a vast submarine mountain, of above 500 miles long, and near 300 broad, and seamen know when they approach it by the great swell of the sea, and the thick mists that impend over it. The labor of catching the cod-fish is very great, as they are caught singly with the hook. The fish when taken are properly cleaned, salted and dried, and in this state they are ready for exportation. The best season is from the earlier part of February to the end of April; as at that time the cod, which had retired to the deeper parts of the sea, return to these shallow banks, and grow large and fat very fast. Such as are caught later are good, but will not keep so long, especially if caught in the warmer months.

COFFEE: the seed of the berries of a shrub said to be a native of Arabia Felix. It was not till the year 1554 that coffee was publicly sold at Constantinople. Soon after its introduction into the capital of Turkey, the ministers of religion having made it the subject of solemn complaint, that the mosques were deserted while the coffee-houses were crowded, these latter were ordered to be shut, and the police of the city were employed to prevent any one from drinking coffee. This prohibition did not avail, and finally the government laid a tax upon the sale of the beverage, which produced a considerable revenue. Coffee was early in repute at Mocha, a port situated at the entrance of the Red Sea, to which place coffee was brought from all the neighboring districts for exportation. To this day, Mocha coffee is considered the best in flavor, as it is the most expensive in price. Excellent coffee is raised in Java. It is also largely cultivated in the West Indies and in Brazil. The first coffee-house in London was opened in 1652. The aspect of a coffee plantation during the period of flowering, which does not last longer than one or two days, is very interesting. In one night the blossoms expand themselves so profusely that the green foliage looks as if covered with snow. The roasting of coffee for use is a process which requires some attention, to be properly done. If burned, much of the fine aromatic flavor will be destroyed, and a disagreeable bitter taste substituted. Coffee should never be kept any length of time after it is roasted, and should never be ground until it is required for infusion.

COMMERCE: the exchange of commodities for other articles, or for some representative of value, for which other commodities can be procured. At first commerce consisted merely in exchanging the surplus of some particular article of produce, which an individual possessed beyond what he found necessary for his own use, for the similar surplus of some other article possessed by another individual, which kind of traffic is now generally called barter. By the introduction of metallic and paper money, the operations of commerce were much facilitated, while the increase of population rendered them of greater magnitude. Improvements in navigation, the invention of the mariner's compass, the discovery of America, the advancement of science, and the increase of luxury, multiplied the objects of trade. The various duties and regulations established by different governments rendered the subject more complicated to individuals, but at the same time of increased importance to the state. In the United States, especially in those bordering on the Atlantic, a great portion of the population are engaged in commercial pursuits. The commerce of our country is rapidly extending, and the enterprise of our merchants is unsurpassed by that of any other class of men on the face of the globe.

COMMISSION is the allowance given to factors or agents by the merchants, manufacturers, &c. who employ them: it is a percentage on the goods they purchase or sell for account of their principal, and varies according to circumstances.

COMPASS. The mariner's compass is an instrument composed of a magnetic needle and a card, by which the ship's course is directed. The needle, with little variation, always points towards the north, and hence the mode of steering by the compass. The origin of this invention is buried in the darkness of antiquity, but the honor of it is generally given to the Chinese.

CONSIGNMENT: the sending or delivering over goods, money or other property to another person. Thus a cargo sent from Europe may be consigned to a merchant in the United States. The person to whom goods are consigned is called the *consignee*.

CONSUL is an officer established by government in the principal ports of foreign countries, to protect the merchants and citizens of the nation which he represents.

COPAL: a varnish obtained from the *rhus copalinum*, a tree which grows in North America.

COPPER: a well-known metal, so called from its having been first discovered, or at least wrought to any extent, in the island of Cyprus. It is of a fine red color, and emits a sensible odor when rubbed. It is met with in many parts of the United States. Next to iron it is the most useful of the metals.

COPPERAS: a name given to the sulphate of green vitriol. It is used in dyeing wool and hats black.

CORAL: a marine production, of which there are several varieties. The white coral is the most common and the least prized. As an ornament, black coral is most esteemed; but the red is also quite valuable. The red coral, most in use among us, is fished up in the Mediterranean. Coral is produced by insects, which, though they seem too diminutive to be of any importance, are effecting results of startling magnitude in the South Seas. Almost all the islands there are the tops of coral reefs, which have been raised by these little creatures.

CORDAGE: a term used in general for all sorts of cord, whether small or large, made use of in rigging ships.

CORK: the bark of a species of oak, which grows in Spain, Portugal, and on the French side of the Pyrenean mountains.

CORNELIAN: a precious stone, the best specimens of which come from the East Indies.

COTTON: a soft vegetable down, which is the product of a small tree, about the size of a currant bush. It makes a light, cheap, and cleanly garment, and, in many respects, is preferable to wool; although wool will always be in esteem where warmth is the especial convenience sought after.

The cotton plant, which has become of so much importance to our manufactures, would naturally grow to eight or ten feet in height; but the cultivators find that it never bears its downy fruit in so great abundance as when it is kept to about four feet. In the cotton plantations, the plot is regularly laid out, and holes are made for the seeds, at the distance of seven or eight feet from each other. Into each of these several seeds are dropped, though all are not suffered to grow, the weaker ones being pulled up as soon as the planter can discern which are likely to thrive best; so that only two or three are left in each spot. As these plants grow, they are pruned, as no fruit would appear either soon or plentiful, if they were allowed to run wild. This pruning process and gathering of the crops continues about three years, when the plant is so worn out that a new one is more productive. The cotton fruit is gathered in March or April.

This fruit is a brown pod bearing a seed, enveloped in a downy covering. The seeds are separated by a machine called the cotton gin, and the woolly covering, which is the cotton itself, is preserved for sale. Cotton was found growing naturally in America; and the Southern States now supply immense quantities of this article. The plant is also much cultivated in the countries of the Levant, or eastern part of the Mediterranean; as the Morea, Candia, Cyprus, and the islands of Sicily, Malta, &c.; also in the country about Jerusalem and Damascus. It is also raised in the West Indies and in Brazil, and other parts of South America.

When gathered for exportation, the cotton is packed in a curious manner. Large bags are provided, two or three yards in length, and about a yard in width. The mouth of this bag is held open by two cross pieces of timber to which it is fastened, and supported by posts strong and high. The packer gets into this deep bag, to the bottom of it, while another hands to him small parcels of cotton continually; these he places, treads down, and forces into as small a compass as possible. The bag, when thus crammed, will contain three or four hundred weight.

Cotton being a very light commodity, one grand object has been to reduce it in bulk, that a ship might be able to hold a larger quantity, and so make her voyage more profitable. To accomplish this, machinery of very powerful pressure has been invented, by which the cotton is reduced into one thirtieth part of the bulk to which common packing could bring it. It lies so close now as to be almost solid; but it recovers its usual springy lightness on being unpacked and pulled out.

The whole process in the manufacturing of cotton has been so improved of late by ingenious machinery, as to be totally changed. By this means it can be afforded cheaper at the market; a much larger quantity is thus disposed of; and the trade has become a great source of emolument, while it affords employment to many people. The English are able even to fetch the cotton from India, work it up into muslins, send it back again all that way, and sell it in Hindostan cheaper than the natives can produce it on the spot.

The first process with the cotton, when unpacked, is that of carding, in order to prepare it for spinning. This consists in tearing it asunder, by means of a board set with steel hooks, in which the flaky cotton is entangled, and from which it is forced out by another instrument of the same description, which, being drawn the reverse way, tears open the compressed substance of the cotton, and brings it into the state of fine wool.

This carding is now effected by very ingenious machinery, by means of which the work is expedited in an astonishing degree, and performed too with much greater regularity and evenness than could be accomplished by the hand-cards. It consists of cylinders stuck full of teeth, working contrary to each other, and of considerable size and rapidity of motion. The saw-gin, invented by Mr. Whitney, is a most ingenious machine for clearing the cotton from the seeds.

The immense advantages of skill in the manufactures appears strikingly in cotton. One pound of cotton in wool has, by spinning it into yarn, been raised in value to five guineas; and afterwards, when woven into muslin, and ornamented with tambour, has become worth fifteen pounds; yielding a profit of almost six thousand per cent on the raw material.

The greatest manufactories of cotton in the United States are at Lowell and Waltham in Massachusetts, Dover in New Hampshire, Pawtucket and Slatersville in Rhode Island; but there is hardly a town in New England, possessing the requisite advantage of water, &c., which does not resound with the noise of the machinery of a cotton or woollen manufactory.

From a late letter of the Secretary of the United States, we learn that, in producing the whole cotton crop of the United States, only about two millions of acres of land are cultivated. All the foreign exports of cotton in the world do not probably exceed five hundred and thirty-five millions of pounds, of which the United States now export about three hundred and eighty-four millions of pounds; a large portion of the residue is from the remotest parts of Asia, very little of it now coming to Europe. But if necessary or profitable, we could raise the whole of the other one hundred and fifty millions, by putting into cultivation only about five hundred thousand acres more cotton land.

In getting possession of the European market so exclusively as they have, the United States have been much aided by the good quality of their cotton, the low price of land, and the great improvements in cleaning cotton by Whitney's cotton gin since 1793. One person is able to perform with it in a day the work of a thousand without it.

CRANE: a machine with ropes, pulleys and hoops, for drawing up heavy weights.

CRAPE: a light, transparent stuff, made of raw silk gummed. It is manufactured in France and Great Britain.

CRAYON: a name for all colored stones, earths and other minerals, used in designing or painting. Crayons may be made of any color in the following manner: Take plaister of Paris or alabaster calcined, and a sufficient quantity of the color of which you intend to make your crayons; grind them first asunder, and then together, and with a little water make them into a paste; then roll them with your hand upon the grinding-stone into long pieces, and let them dry moderately in the air.

CREDIT: in commerce, a trust or loan of merchandise or money.

CREDITOR: a person to whom any sum of money is due, either by obligation, promise or otherwise.

CUMMIN-SEED: a long slender seed, used in medicine, and imported chiefly from Malta.

CURRANTS: a smaller kind of grapes, brought to us principally from Zante and Cephalonia.

CUSTOMS: taxes levied upon goods when imported into or exported from a country. They are also known by the more general name of *duties*. The duties upon goods vary according as distinct acts of Congress have exacted more or less upon the various articles of commerce. There is a *Custom-House* in every port in the country, to which vessels come to unload their cargoes. The table regulating the rates of duties upon goods imported is called the *tariff* of duties.

CUTLERY includes all kinds of knives and forks, razors, scissors, shears, &c., which are manufactured in the greatest perfection at Sheffield, in England.

CUTTER: a kind of boat attached to a vessel of war, which is rowed with six oars, and is employed in carrying light stores, &c.

D.

DAMASK: an ingeniously wrought stuff, the ground of which is bright and glossy, with vines, flowers and figures interwoven. It is made in France as well as in India.

DATES: the fruit of the date-palm, a tree inhabiting the north of Africa, and which is also cultivated in Italy and Spain.

DEALS: a thin kind of plank, of great use in carpentry.

DEBENTURE: the certificate delivered at the custom-house, when the exporter of any goods or merchandise has complied with the regulations, in consequence of which he is entitled to a bounty or *drawback* on the exportation.

DEBTOR: a person owing money to his creditor.

DIAMOND: a precious stone, which has been known from the remotest ages. Diamond-mines are found chiefly in the East Indies and in Brazil, in South America.

DIMITY: a species of stuff entirely composed of cotton. It is manufactured in the East Indies and in France.

DISCOUNT: a term used among traders, merchants and bankers. It is used by the two former on occasion of their buying commodities on the usual time of credit, with a condition that the seller shall allow the buyer a certain discount at the rate of so much per cent per annum, for the time for which the credit is generally given, upon condition that the buyer pays ready money for such commodities, instead of taking the credit. With banks, *discount* is the interest they deduct from bills of exchange and promissory notes, when they give cash for them, taking the discount for as many days as such bills and notes have to run before they become due, at the legal rate of interest.

DIVIDEND is a share or proportion of the interest of stocks paid to the share-holders, usually half-yearly.

DOCK: an artificial basin by the side of a harbor, made convenient either for building or repairing vessels. In the United States, the spaces between the wharves are called docks. A *dry dock* is a place where the water is kept out by great flood-gates, till the ship is built or repaired, when the gates are opened, and the water let in to float and launch her. The United States dry dock at Charlestown, Mass., is 341 feet in length by 80 in width, and 30 feet deep. It is capable of admitting the largest ship in our navy—namely, the Pennsylvania, the entrance of the dock being 60 feet across, and the width of that ship 55 feet.

DOUBLOON: a Spanish gold coin, worth about sixteen dollars.

DOWN: fine feathers from the breasts of several birds, particularly that of the duck kind. That of the eider duck is the most valuable. Large quantities are exported from Iceland.

DRAB: a sort of thick woollen cloth for great coats.

DRAFT: in commerce, a common colloquial term for a bill of exchange.

DRAGON'S BLOOD: a gummy, resinous substance, which is brought from the East Indies. A solution of dragon's blood in spirit of wine is used for staining marble, to which it imparts a red tinge.

DRAWBACK: in commerce, an allowance made to merchants on the re-exportation of certain goods, which in some cases consists of the whole, in others of a part, of the duties which had been paid upon the importation.

DRUG, in a commercial sense, is applied to every article of a medicinal nature, such as gums jalap, senna, &c.

DUTY. See CUSTOMS.

DUCK: a sort of strong brown cloth, used chiefly by sail-makers. The best comes from Russia.

E.

EBONY-WOOD, brought from the Indies, is exceedingly hard and heavy, susceptible of a very fine polish. There are many kinds. The most usual among us are black, red and green; these are the product of the island of Madagascar.

EMBARGO: an arrest on ships or merchandise, by public authority; or a prohibition on ships, to prevent their going out of port, sometimes to prevent their coming in, and sometimes both, for a limited time.

EMERALD: one of the most beautiful of colored gems. Its color is a pure green. It is found in the East Indies, and in many parts of America; also in Europe.

EMERY: in natural history, a rich iron ore, imported from the island of Naxos, and found in different parts of Europe.

ENAMEL: a kind of colored glass, used in enamelling and painting in enamel.

ERMINE: a valuable fur, obtained from a species of weasel, abounding in all the cold countries, especially Russia, Norway and Lapland.

ESTRICH: a name given to the fine white down which lies immediately under the feathers of the bird called the ostrich.

ETCHING: a manner of engraving on copper, in which the lines, instead of being cut with a graver, are corroded in with aquafortis.

ETHER: a very volatile fluid, produced by the distillation of alcohol with an acid.

EXCHANGE: a place in most considerable cities, wherein the merchants, agents, brokers and other persons concerned in commerce, meet at certain times to confer and treat together of matters relating to exchanges, payments, freights, and other mercantile negotiations both by sea and land. The most considerable exchanges in Europe are those of London, Amsterdam, Dublin, Bourdeaux and St. Petersburg. The Philadelphia Exchange is an elegant and commodious building.

EXCHANGES. See Bills of Exchange. The course of exchange is always fluctuating, sometimes over and sometimes under the par, or equal value, of exchange, and is chiefly governed by the balance of trade being for or against the negotiating parties; so that when the exchange is above par, the balance of trade is against them, and when it is under par, it is in their favor. If London ships to Boston merchandise to the amount of 500,000*l*., and at the same time Boston ships to London goods or merchandise to the amount of only 300,000*l*., Boston can only discharge to the amount of 300,000*l*., and for the remaining balance of 200,000*l*. she must procure bills of exchange at the lowest possible premium elsewhere, in order to liquidate the debt due to London; as it is not to be supposed that Boston, being indebted to London, can furnish bills on equally good terms with another city not indebted to London. Thus Boston, by paying a premium of one per cent for bills of exchange, would have to pay 202,000*l*. in order to liquidate the aforesaid balance of 200,000*l*., thereby losing 2000*l*. on the transaction.

EXCISE, one of the principal branches of the public revenue in Great Britain, consists of inland duties, or taxes on articles manufactured or consumed; whereas the duties of customs are paid on goods brought into or carried out of the country.

EXPORTATION: the act of sending goods out of one country into another.

F.

FAILURE, is where a tradesman, through misfortune or imprudence, is unable to pay his debts, which may happen from trading beyond his capital, or negligence in keeping his accounts, or misfortunes in trade.

FATHOM: a long measure containing six feet, chiefly used at sea.

FEATHERS: the plumage of different kinds of birds. They make a considerable article of commerce, particularly those of the ostrich, heron, swan, peacock, goose, &c., for plumes, ornaments of the head, filling of beds, writing pens, and various other purposes.

FELT: a sort of stuff deriving all its consistence merely from being fulled or wrought in warm water, without either spinning or weaving. Felt is made either of wool alone, or of wool and hair.

FELUCCA: a little vessel with six oars, frequent in the Mediterranean. It has this peculiarity, that its helm may be applied either in the head or the stern, as occasion requires.

FIDDLE, likewise denominated a violin, is a stringed musical instrument, too well known to need description. The finest toned violins are made in Italy; they are usually called Cremonas, from the name of an Italian town, where they were formerly manufactured in the highest perfection. Fifty or sixty guineas are not an uncommon price for a Cremona fiddle.

FIGS. The best come from Turkey, packed in cases. Many are brought from Faro of a small and inferior kind; also from the south of France. Great quantities are exported from Spain and Portugal, packed in mats.

FLANNEL: a kind of slight, loose woollen stuff, composed of a woof and warp, and woven on a loom with two treadles, after the manner of baize. The flannels of England and Wales are most esteemed.

FLAX: a plant, having a slender, round, hollow stalk, about two feet high; its bark is full of filaments, like hemp; the leaves are long, narrow and pointed. It bears a blue flower, to which succeeds a roundish fruit about the size of a pea, containing ten little seeds, full of an oily substance or meal. Linen is made from flax.

FLAX-SEED. Great quantities of flax-seed are exported from this country to Europe. Linseed oil is obtained from this seed.

FLINT: a stone, formerly very useful in gunning. The invention of the percussion-cap has superseded it almost entirely.

FLOUR: the fine, sifted meal of wheat. It forms one of the staple commodities of the United

States, and is frequently exported in barrels to the West Indies and different parts of South America. Some of the principal flour-mills are those of Brandywine in Delaware, and Rochester in New York. These are the most extensive, but there are also large flour-mills in most of the Southern States. Many of these mills are so contrived that the wheat is carried by machinery to one of the upper rooms and there ground; it then falls into a room below and is sifted or bolted, and then falling still lower is received into the barrels, and there packed and headed for shipping.

FOIL: among glass-grinders, a sheet of tin incorporated with quicksilver, &c., laid on the back of a looking-glass to make it reflect.

FORECASTLE: that part of a ship where the foremast stands. It is divided from the rest by a bulk-head, and here are the berths allotted to the sailors.

FORGERY is where a person counterfeits the signature of another with intent to defraud. The punishment of this crime is severe.

FOUNDERY, or FOUNDRY, is the place or workhouse, which is furnished with forges or furnaces, for melting and casting all sorts of metals, particularly brass, iron, bell-metal, type-metal, &c.

FRANKINCENSE: a dry, resinous substance, obtained from a tree which grows in Arabia.

FREIGHT is the consideration of money agreed to be paid for the use or hire of a ship, or, in a larger sense, the burden of such ship.

FRIGATE: a ship of war. A frigate has commonly two decks, whence that called a light frigate is a frigate with only one deck. All ships of war that carry from twenty to fifty guns are called frigates.

FULLER'S EARTH: a species of clay, of a grayish, ash-colored brown, in all degrees from very pale to almost black, and it has generally something of a greenish cast. It is used by fullers to take grease out of their cloth before they apply the soap.

FULLER. The business of the *fuller* is to clean, scour, mill, and thicken woollen cloths; and is chiefly to be met with in the countries where the woollen manufacture flourishes.

FUR: the skins of quadrupeds, which are dressed with alum without depriving them of their hair. The skins chiefly used are those of the sable, ermine, bear, buffalo, beaver, hare, fox, &c. They constitute an article of considerable traffic in North America and Russia.

FURRIER. The furrier cures, dyes, and makes up several kinds of furs or skins, with the hair on, into muffs, tippets, the lining of robes, &c.

FUSTIAN: a kind of cotton stuff, which seems as if it was waled or ribbed on one side. The principal manufacture of this article is carried on at Manchester, in England, and in its neighborhood.

FUSTIC: a yellow wood, used in dyeing, principally from the islands of Barbadoes, Tobago, &c. The color it yields is a fine golden yellow.

G.

GALANGAL: a root which is brought from China. It is an excellent stomachic.

GALBANUM: a gum issuing from the stem of an umbelliferous plant, growing in Persia and many parts of Africa.

GALLEY: a low-built vessel, much used in the Mediterranean.

GALLOON: a narrow, thick kind of ferret or lace, used to edge or border clothes, sometimes made of wool or thread, and at others of gold or silver, but commonly of mohair or silk.

GALLS are tumors, produced by the punctures of insects on several species of the oak tree. Other trees are liable to the same accidents, and produce galls of various forms and sizes, but those of the oak only are used in medicine, and for the purposes of dyeing and making ink. Those which come from Aleppo are the most valuable. Galls put in small quantity into a solution of vitriol in water, though but a very weak one, give it a purple or violet color, which, as it grows stronger, becomes black; and on this depends our writing ink, as also a great deal of the art of dyeing, staining leather, and many other of the manufactures.

GAMBOGE: a gum-resin of a firm texture and of a beautiful yellow. It is chiefly brought from Cambogia or Cambaja, in the East Indies, whence it has derived its name. It is used in medicine and in painting in water colors.

GARNET: a very beautiful gem, of a red color, with an admixture of blue. Garnets are divided into the oriental or Asiatic, and occidental or European kinds. The first are principally brought from Calicut, Cananor and Cambay, and the second are common in Italy, Hungary and Bohemia.

GAS-LIGHT. Common bituminous pit-coal, when exposed to a certain degree of heat, becomes decomposed. It gives out in the first place an inflammable gas, consisting of carbon and hydrogen. It is this which has been applied to the furnishing of light in the place of oil. The inflammable nature of coal-gas was first known from its dreadful explosive effects in mines, and received the name of *fire* or *choke-damp*. It was also observed to issue sometimes from crevices on the surface of the earth, when, on a lighted torch being presented to it, it would inflame, and burn for a considerable period. In 1726, Stephen Hales procured an elastic air or gas from the distillation of coal; and although some experiments of the inflammability of air so procured were occasionally made by individuals, and related in the scientific publications of the day, yet the subject excited little attention, and was ultimately thrown aside for a long period of years.

The most casual observer must have remarked, that, when a piece of coal becomes heated in the fire, it begins to swell; it then bursts at a particular part; a stream of air rushes out, and, coming in contact with the fire, ignites into a flame. If a common tobacco-pipe is taken, a small piece of coal put into the bulb, the top of this cemented closely with moist clay, and the bulb then put into the fire, a stream of inflammable air will, in a short time, issue from the extremity of the pipe, and continue to do so till the whole gas the coal contains is exhausted. On examining the matter remaining, it will be found to be coke, or charcoal. Coal, then, by this mode of distillation, is found to consist of an inflammable gas, called carburetted hydrogen, and of charcoal. The extension of this long-known and simple experiment into a process of general usefulness proceeded by gradual and oft-interrupted steps; and, as is usual in many important processes of the kind, the real inventor is involved in some degree of doubt. In the year 1792, a Mr. Murdoch, residing in Cornwall, England, made use of coal-gas for lighting up his house and offices; and in 1797, he again made a similar use of it at Old Cumnock, in Ayrshire. In 1802, he was residing at Messrs. Boulton and Watt's establishment, Soho, near Birmingham, where, under the combined talents of several ingenious engineers who were assembled at that highly liberal and celebrated seat of the arts and sciences, a splendid illumination of gas was exhibited on the occasion of the celebration of the peace of that year.

But some time previous to this public exhibition of gas illumination at Soho, it had been made use of in a similar manner at Paris, by M. le Bon. In 1801, a friend of the gentlemen at Soho had written a letter from Paris, communicating the information that a gentleman of that city had lighted up his house and gardens, and had it in contemplation to light the streets of Paris with gas from wood and coal.

The process of making gas is not complicated. The coal is put into large retorts of iron, and fire applied underneath. The gas, which is separated by this heat, then passes through an apparatus, where it is freed from an oily or tarry matter, which drops from it, and is afterwards purified by passing through lime-water. It is then stored up into large reservoirs, or gasometers, from whence it is sent by pressure through pipes, laid under ground, to the various parts of the city.

Gas was introduced into the chief cities of the United States but a few years since, and now its use is daily increasing. In Boston it is no longer an object of wondering curiosity to the passers-by; although our readers can recollect the time when the few windows illuminated by its glare would attract crowds of spectators. The gas which lights London is calculated to consume 38,000 chaldrons of coals per annum, lighting 42,000 lamps in shops, houses, &c., and 7,500 street lamps. In 1830, the gas pipes in and round London were above one thousand miles in length. Gas lights of half an inch in diameter supply a light equal to twenty candles; of one inch in diameter, equal to one hundred; two inches, four hundred and twenty; three inches, to one thousand.

GAUZE: a very slight, thin, open kind of stuff, made of silk, sometimes of thread.

GENEVA, or Gin: a spirit, distilled a second time, with the addition of juniper berries. Holland is noted for distilling the best gin.

GENTIAN: a plant of the mountainous parts of Germany, the roots of which are used in medicine.

GINGER: a knotty root, of a fibrous substance, and of a pale or yellowish color. The ginger which is imported comes principally from the Indies. The roots make a favorite sweetmeat preserved with sugar.

GINSENG: a plant, the root of which has long been celebrated among the Chinese, entering into the composition of almost every medicine used by the higher classes. It was formerly supposed to grow exclusively in Chinese Tartary, and was so rare as to bring three times its weight in silver. Notwithstanding its extravagant price and high reputation in China, it appears to be really a plant of very little efficacy. It has been found to be a native of North America, in the vicinity of the Alleghany Mountains, and has been exported to China in such quantities as to reduce the price very much.

GLASS: a transparent, brittle, factitious body, produced by the action of fire upon a fixed salt and sand, or stone that readily melts. The period of the invention of glass is quite unknown. The usual story of its origin is taken from Pliny, who relates, that some merchants who were driven by a storm to the coast of Phenicia, near the river Belus, made a large fire on the sand to dress their food, using as fuel some plants that grew near, when an imperfect glass was formed by the melting together of the sand and ashes. This production was accidentally picked up by a Tyrian merchant, who, from its beauty and probable utility, was led to investigate its origin, and who, after many attempts, succeeded in its manufacture. The legend most probably originated in the circumstance that glass was very anciently made at Tyre, and that the sand on the sea-shore in the immediate neighborhood of the Belus is very white and crystalline, and well adapted to glass-making. Although the most ancient manufactures of glass on record were at Tyre, it is certain that the art was known to the Egyptians. Some pieces of blue glass, resembling turquoise, have been recently discovered in ancient tombs at Thebes.

The art was first practised in England in the year 1557. The base of glass is silica, which forms a considerable portion of many stones, and may be called the sole ingredient in crystal, flint and sand. The substance is insoluble in water, and infusible in the greatest heat producible in common furnaces. If it could be melted, we might, perhaps, procure glass at once; but, as this cannot be done, it is necessary to find some substance that will cause crystal to melt without destroying its transparency; this substance is alkali, either soda or potash. After mixing the alkali and sand together, it is usual to expose them for some time to a moderate heat. The mixture after being thus heated is called *frit*. The frit, while still hot, is introduced into large pots made of a mixture of pure clay and baked clay, and exposed to a heat sufficient to melt it completely. The fusion must be continued till the effervescence occasioned by the separation of the carbonic acid from the soda has subsided, and the opaque scum, known by the name of glass-gall, which collects on the surface of the glass, must be removed. This scum is occasioned by the common salt, and other foreign bodies, which are always mixed with the soda of commerce. When the fusion has been continued the proper time, the furnace is allowed to cool a little. In that state the glass is exceedingly ductile, and readily assumes any shape that the workman pleases. If the glass vessels, after being formed, were cooled rapidly, they would contract unequally, and become, in consequence, so brittle as to fall to pieces when handled. To prevent this inconvenience, they are put into a large red-hot furnace, which is allowed to cool very slowly to the temperature of the air. This process is called annealing.

There are different kinds of glass manufactured for different purposes: the principal of these are flint-glass, crown-glass and bottle-glass. Flint-glass is formed of soda, pounded flints and oxide of lead. It is the densest, most transparent, and most beautiful glass, and is often called crystal. Crown-glass contains no lead. It is composed of soda and fine sand, and is called window-glass. Bottle-glass is the coarsest of all. It is composed of kelp, or the refuse of soap-boilers, and common sand. Its green color is owing to the admixture of iron. Of these species, the most fusible is flint-glass, and the least fusible bottle-glass. Glass is often tinged of various colors by mixing with it, while in fusion, some one or other of the metallic oxides; and on this process, well conducted, depends the formation of paste or factitious gems.

GLAZIER: an artificer who works in glass.

GLUE: a well-known substance employed to cement pieces of wood together. It is extracted from animal substances of different sorts. Bones, muscles, ligaments, membranes and skins all yield it; but the quality is best when skins alone are employed; and those of old animals yield a much stronger glue than those of young.

GOBELINS: a famous manufactory near Paris for making tapestry and other furniture.

GOLD: a metal of a yellow color, in all ages the most prized of all. Europe is mostly supplied with gold from Chili and Peru and the coast of Africa. In the United States, gold mines abound in Virginia, North Carolina, Georgia, and other Southern States.

GOLD-BEATERS' SKIN: the interior skin of an ox, which gold-beaters lay between the leaves of gold while they beat it, whereby the membrane is reduced thin, and made fit to apply to cuts or wounds.

GOLTSCHUT: a sort of money, or rather a small ingot of gold, which comes from China.

GONDOLA: a flat boat, very long and narrow, chiefly used at Venice to row on the canals.

GRACE, DAYS OF: a certain number of days allowed for the payment of a bill after the written term is expired. In this country there are generally three days of grace allowed upon every bill, whether foreign or domestic, or drawn after sight or date, and upon every promissory note; but if the last of the three days happen to fall on a Sunday, the bill becomes payable on the preceding day.

GRAIN signifies the fruit or seed growing in a spike or ear, in which sense it comprehends corn, wheat, rye, barley, &c.

GRANITE: a very hard, rough kind of stone, so called from being sprinkled over with a great many little stains, that resemble grains of sand. There are various kinds. It is found abundantly distributed throughout New England. The Quincy granite is in high repute.

GRAPES: a well-known fruit, produced from the vine. It is of various colors when ripe, but the principal are the green and purple. We import great quantities of green grapes from Malaga and other parts of Spain.

GRAPNELS: a sort of anchors with four flooks, serving for boats to ride by.

GROSS signifies the quantity of twelve dozen of any thing.

GROUND-TACKLE: a ship's anchors, cables, and in general whatever is found necessary to make her ride safe at anchor.

GUAIACUM: a medicinal wood, extremely hard and solid, of a greenish black color. The gum is also used in medicine. We obtain it from South America and the West Indies.

GUM ARABIC: a gum which exudes from the Egyptian acacia or thorn-tree. It is brought to this country principally from the Levant. It is used in medicine as a demulcent; and is employed by dyers, calico-printers, &c.

GUNPOWDER: a composition of nitre, sulphur and charcoal, mixed together and usually granulated. The sulphur easily takes fire with a spark; the charcoal holds the fire, and makes it very fierce; and the saltpetre, being decomposed by the fire, explodes. It happens every now and then that the powder-mills blow up; as all who are in them perish, it is generally impossible to tell how the accident happened. We only know that if by a nail in the mixture, or by any other means, a spark of fire is communicated to the powder, the explosion is instantaneous and irresistible.

GYPSUM: native sulphate of lime. It is found in different parts of Europe and America.

H.

HARDWARE includes, in few words, every kind of goods manufactured from metal, and thus comprises iron, brazen, steel and copper articles of all descriptions.

HARTSHORN: the entire horns of the male deer as separated from the head. The chemical analysis of hartshorn yields a water highly impregnated with a volatile salt, which is called spirit of hartshorn.

HATCHES: in a ship, a kind

of trap-doors between the mainmast and foremast, through which all goods of bulk are let down into the hold.

HATCHWAY: the way or passage over the hatches of a ship.

HAWSER: a large rope or a kind of small cable for various uses on board a ship.

HELM, in a ship, is a piece of timber fastened into the rudder, by which the ship is directed on her course. Steering-wheels are now more generally used. There are several terms in the sea-language relating to the helm: as, "bear up the helm," that is, let the ship go more large before the wind; "helm amidship," or "right the helm," that is, keep it even with the middle of the ship; "port the helm," put it over to the left side of the ship; "starboard the helm," put it on the right side of the ship; "luff," put the helm towards the lee side of the ship.

HEMP: a plant, which grows wild in the East Indies and some parts of America, and is valuable for the various uses of its seed and the fibres of its bark; the latter being made into cordage, ropes, cables and cloth of every quality. Though cultivated to some extent in the United States, it still forms an article of import from Europe, and particularly Russia. Only the coarser kinds of hemp are employed in making cordage; the better sorts being used for linen, which, though it can never be made as fine as that from flax, is yet incomparably stronger, and equally susceptible of bleaching. Cloths made of hemp have also this property, that their color improves by wearing, while that of linen decays.

HEMP-SEED: the seed which produces hemp. It is deemed a good medicine in coughs, but its great virtues are against the jaundice.

HERRINGS: one of the most common kinds of fish of commerce. It is found in the seas and rivers both of this country and Europe, and is taken in immense quantities at the proper season of the year, which is between April and September. When smoked and salted it is ready for exportation.

HIDES, signify generally the skins of beasts; but the term is more particularly applied to those of large cattle, such as bullocks, cows, horses, &c. Hides are either raw or green, that is, the same as when taken off the carcass, or salted and seasoned, in which case they are dressed with salt, alum and saltpetre, or they are cured or tanned. The hides of South America are in the highest repute, and vast quantities of them are annually exported from Brazil.

HOCK: a German wine, the best of which comes from Frankfort on the Maine.

HONEY: a vegetable juice collected by bees. Its flavor varies according to the nature of the flowers from which it is collected.

HOPS: a perennial plant, of which there are several varieties. They are used for preserving and improving beer and other malt liquors. The brighter the color of hops, the greater is the estimation in which they are held.

HOREHOUND: a plant, the juice of which imparts a permanent dye to wool, silk and linen, and is of use in pulmonary complaints.

HULK: a ship without masts or rigging.

HULL, in the sea language, is the main body of a ship, without either masts, yards, sails or rigging. To *lay a hull* is to lay to with only a small sail in a gale of wind. *Hull down* is when a ship is so far off that you can only see her masts. To *hull a vessel* is to fire a shot into any part of her hull.

HUNGARY-WATER: a distilled water, so denominated from a queen of Hungary, for whose use it was first prepared. It is now known to be only a distillation of rosemary flowers.

HYACINTH: a pellucid gem, whose color is red with an admixture of yellow.

HYDROMETER: an instrument used for determining the specific gravity of liquids.

I.

ICELAND MOSS: a species of lichen, growing in the arctic regions of Europe, and also abundant in the alpine region of the White Mountains of New Hampshire. It is an article of commerce, and employed in pharmacy in the composition of pectoral lozenges, syrups, &c.

IMPORTATION: the act of bringing goods into a country from foreign ports. A considerable portion of the public revenue is derived from duties on commodities imported from abroad.

INDIAN INK. This valuable

black for water-colors is brought to us from China and the East Indies, in small quadrangular cakes, generally marked with Chinese characters. It is made of lamp-black and size, or animal glue, with perfumes. The fine soot from the flame of a lamp or candle will make, mixed with clean size, an ink equal to that imported.

INDIA-RUBBER. This substance, sometimes called caoutchouc, or gum elastic, is prepared from the juice of a tree growing in Cayenne and other parts of South America. The trunk of the tree is wounded by a sharp instrument, and the juice which flows from it applied in successive coatings on a mould of clay, and dried by the fire or the sun; when it is of a sufficient thickness the mould is removed. It is thus generally formed into the shape of bottles, shoes, &c. This substance was not known in Europe until the beginning of the eighteenth century. It was then brought as a great curiosity from South America. The hue of the caoutchouc of commerce is black, in consequence of the method employed in drying it. The natives of those parts of South America to which this tree is indigenous convert the juice to a variety of purposes. They collect it chiefly in the rainy season, because, though it will exude at all times, it flows then most abundantly. They sometimes fashion it into flambeaux, which give a beautiful light. Caoutchouc is the most pliable and elastic of known substances, and so tenacious that it cannot be broken without considerable force. It has always been a desideratum with chemists to dissolve caoutchouc by some means which would allow it to reform, and to assume different figures, with the same facility as they can be imparted when in its original state of fluidity. Within the last few years two solvents, which can be abundantly and cheaply supplied, have been found for caoutchouc, which when evaporated leave it unchanged. By these means this substance is made to be of extensive application. A thin coating of the solution spread on any texture renders it impervious to air or moisture; while, at the same time, it can be folded in as portable a form as before it had received this preparation. Hence pillows and even beds are formed out of bags thus made air tight; and these, being furnished with a small tube and stop-cock, may be inflated at pleasure into soft elastic cushions. There are several establishments in this country where India-rubber is manufactured into shoes, aprons, cloaks, boots, pontons, and a variety of useful articles. The most considerable manufactory of this kind is at Roxbury, in Mass. India-rubber is exported principally from Para, in South America.

INDIGO: the drug which yields the beautiful dye known by that name. It is obtained by the maceration in water of certain tropical plants. Indigo was imported into Europe by the way of Alexandria, previously to the discovery of the route to India by the Cape of Good Hope. When first introduced, it was customary to mix a little of it with woad to heighten and improve the color of the latter; but, by degrees, the quantity of indigo was increased, and woad was at last entirely superseded. It is worth while, however, to remark, that indigo did not make its way into general use without encountering much opposition. The growers of woad prevailed on several governments to prohibit the use of indigo. In Germany, an imperial edict was published in 1654, prohibiting the use of indigo, or *devil's dye*. Good indigo is known by its lightness or small specific gravity, indicating the absence of earthy impurities, or by the purity of the color itself. The first quality, estimated by this last test, is called, in commercial language, *fine blue;* then follow *ordinary blue*, fine purple, purple and violet, dull blue, &c. The value of the indigo consumed in the United States in 1829 was estimated at two millions of dollars. Of this, about one tenth part only, or 200,000 pounds, was raised in this country. It is computed that British India supplies three fourths of all the indigo brought into European markets. Indigo is raised in considerable quantities in different parts of South America.

INGOT: a mass of gold or silver from the mines, melted or cast into a sort of mould, but neither coined nor wrought.

INK. Every liquor or pigment used for writing or printing is distinguished by the name of ink. To make *black writing ink*, take eight ounces of Aleppo galls in coarse powder; four ounces of logwood in thin chips; four ounces of green copperas; three ounces of gum arabic in powder; one ounce of blue vitriol; and one ounce of sugar candy. Boil the galls and logwood together in twelve pounds of water for one hour, or until half the liquid has been evaporated. Strain the decoction through a hair sieve, and then add the other ingredients. Stir the mixture till the whole is dissolved, more especially the gum; after which leave it to subside for twenty-four hours.

To make *red ink*, take of the raspings of Brazil-wood a quarter of a pound, and infuse them two or three days in vinegar. Boil the infusion for an hour over a gentle fire, and afterwards filter it while hot. Put it again over the fire, and dissolve in it, first, half an ounce of gum arabic, and afterwards of alum and white sugar each half an ounce.

INSOLVENT. A tradesman who has not a capital adequate to the payment of his debts is said to be insolvent.

INSTALMENT, is where a sum of money due is, by agreement between the debtor and creditor, to be paid in certain proportions and at stipulated times.

INSURANCE. The principle of insurance consists in giving a *certain small sum* to avoid a *contingent great loss;* and the sum given, which is called a premium, is in all cases proportioned to the loss against which the persons insuring are to purchase a guarantee, and the degree of probability of the event taking place. The loss of a ship, or the conflagration of a cotton mill, is a calamity that would press heavily even on the richest individual. But were it distributed among several individuals, each would feel it proportionally less; and provided the number of those among whom it was distributed were very considerable, it would hardly occasion any sensible inconvenience to any one in particular.

Hence the advantage of combining to lessen the injury arising from the accidental destruction of property: and it is the diffusion of the risk of loss over a wide surface, and its valuation, that forms the employment of those engaged in insurance.

Suppose it has been remarked that of *forty* ships of the ordinary degree of seaworthiness, employed in a given trade, one is annually cast away, the probability of loss will plainly be equal to *one fortieth.* And if an individual wish to insure a ship, or the cargo on board a ship engaged in this trade, he ought to pay a premium equal to the *one-fortieth* part of the sum he insures, exclusive of such an additional sum as may be required to indemnify the insurer for his trouble, and to leave him a fair profit. If the premium exceed this sum, the insurer is overpaid; and if it fall below it he is underpaid.

Insurance companies formed for carrying on this business have generally a large subscribed capital, or such a number of proprietors as enables them to raise, without difficulty, whatever sums may at any time be required to make good losses. Societies of this sort do not limit their risks to small sums; that is, they do not often refuse to insure a large sum upon a ship, a house, a life, &c. The magnitude of their capitals affords them the means of easily defraying a heavy loss; and their premiums being proportioned to their risks, their profit is, at an average, independent of such contingencies.

An immense advantage results to navigation and commerce from the practice of marine insurance. Without the aid that it affords, comparatively few individuals would be found disposed to expose their property to the risk of long and hazardous voyages; but by its means, insecurity is changed for security, and the capital of the merchant, whose ships are dispersed over every sea, and exposed to all the perils of the ocean, is as secure as that of the agriculturist.

INTEREST is the sum paid by the borrower of a sum of money, or of any sort of valuable produce, to the lender, for its use. The distinction between *simple* and *compound* interest is this: When a loan is made, it is usual to stipulate that the interest upon it should be regularly paid at the end of every year or half year, as the case may be. A loan of this sort is said to be at simple interest. Sometimes, however, money or capital is invested so that the interest is not paid at the period when it becomes due, but is progressively added to the principal; so that at every term a new principal is formed, consisting of the original principal and the successive accumulations of interest upon interest. Money invested in this way is said to be placed at *compound interest*.

INVOICE: an account of goods or merchandise shipped by merchants for their correspondents abroad, in which the peculiar marks of each package, with other particulars, are set forth.

IPECACUANHA: the root of a perennial plant growing in Brazil and other parts of South America. It is a mild and safe emetic.

IRON: the most abundant and most useful of all the metals. It is found in abundance in this country, but still we import great quantities. *Cast* or *pig iron* is the name given to this metal when first extracted from its ores.

IRON-WOOD: a species of wood, of a reddish cast, so called on account of its corroding as that metal does, and its being remarkably hard and ponderous, even more so than ebony. It comes from South America and parts of Asia.

ISINGLASS: one of the purest and finest of the animal glues. It is a product the preparation of which is almost peculiar to Russia. It is made of the air-bladders and sounds of different kinds of fish, which are found in the large rivers that fall into the North Sea and the Caspian. It dissolves readily in boiling water, and is much used in cookery.

IVORY: the name given to the teeth or tusks of the elephant, and of the walrus or sea-horse. The western and eastern coasts of Africa, the Cape of Good Hope, Ceylon, India, and the countries to the eastward of the straits of Malacca, are the great marts whence supplies of ivory are derived. The number of elephants that are annually slaughtered for their tusks must be immense, as the demand for ivory is very great.

J.

JALAP: a root, named from Xalapa in Mexico, whence we chiefly import it. It is a strong purgative in medicine.

JAPANNING: the art of varnishing and painting ornaments on wood, in the same manner as is done by the natives of Japan.

JASPER: a stone found in the East Indies and China, and an ingredient in the composition of many mountains. It is used in the formation of seals, and when polished is very beautiful.

JET: a black, inflammable, bituminous substance, susceptible of a good polish.

JUJUBES: the fruit of a tree, which grows in France, Italy, and likewise in India and Persia. The fruit is of the size of an olive, and contains a little nut also like that of the olive. Jujube-paste is said to be of efficacy in pulmonary complaints.

JUNIPER-BERRIES : the fruit of a tree, of which there are several species. The berries are chiefly used to give a flavor to gin and other spirits.

JUNK, among shipwrights, is made from old cables and ropes, cut, untwisted, and pulled out into loose hemp. It is used for caulking ships. A junk is also a name given to a vessel used in the China Seas.

JURY-MAST, among mariners, is what is set up instead of a mast carried away in a storm, or lost through some other casualty. The derivation of the term has puzzled all the antiquaries.

K.

KELP : a substance formed of marine plants, which, being cut from the rocks with a hook, are collected and dried on the beach to a certain extent; they are afterwards put into kilns prepared for the purpose, the heat of which is sufficient to bring the plants into a state of semi-fusion. They are then strongly stirred with iron rakes, and when cool condense into a dark blue or whitish mass, very hard and solid. Kelp is used in the composition of soap, the manufacture of alum, and the formation of crown and bottle glass.

KERMES : an insect of the same species as the true Mexican cochineal, found upon a species of oak growing in Spain, France, the Levant, &c. Cloths dyed with kermes are of a deep red color; and though much inferior in brilliancy to the scarlet cloths dyed with cochineal, they retain the color better, and are less liable to stain.

KERSEY : a species of coarse woollen stuff, usually woven in ribs.

KERSEYMERE : a plain woollen stuff, made from the finest wools.

KETCH : a small vessel, constructed for carrying bombs.

KID-SKINS : the skins of young goats, chiefly used in the manufacture of ladies' gloves.

KINO : a gum, the produce of trees that grow in the Indies.

L.

LAC, or GUM-LAC: a substance which has been improperly called a gum, produced in Bengal, Assam, &c., on the leaves and branches of certain trees, by an insect. Lac yields a fine red dye, and the resinous part is extensively used in the manufacture of sealing-wax and hats, and as a varnish. *Lac dye* or *lake* consists of the coloring matter extracted from the stick lac. When stick lac has been separated from the twigs to which it naturally adheres, and coarsely pounded, the native silk and cotton dyers extract the color as far as it conveniently can be done by water. The yellowish, hard, resinous powder which remains is called *seed lac. Shellac* is produced from seed lac, by putting the latter into bags of cotton cloth, and holding it over a charcoal fire, when the lac melts, and being strained through the bag, the resinous part, which is the most liquifiable, is obtained in a considerable degree of purity; it is formed into thin sheets or plates. Thin, transparent or amber-colored shellac is the best. It is used principally in the manufacture of sealing-wax.

LACE: a plain or ornamented net-work, tastefully composed of many fine threads of gold, silver, silk, flax or cotton, interwoven. Thread lace is of various kinds, denominated either from the place where it is manufactured, or from the particular method of working. That which is woven with bobbins, made of bone or ivory, is called bone-lace: The manufacture of lace was formerly very elaborate, but of late it has been much cheapened by the superior neatness and cheapness of bobbinet, a sort of lace formed by the loom.

LACK: a word used in the East Indies to denote the sum of 100,000 rupees, which amounts to about 12,500*l.* sterling.

LAMP-BLACK. The finest lamp-black is produced by collecting the smoke from a lamp with a long wick, which supplies more oil than can be perfectly consumed, or by suffering the flame to play against a metalline cover, which impedes the combustion, not only by conducting off part of the heat, but by obstructing the current of air.

LAND-WAITER: an officer of the custom-house, whose duty it is, upon landing of any merchandise, to taste, weigh, measure or otherwise examine the various articles, &c., and to take an account of the same.

LAPIDARY: a person who deals in precious stones, gems, &c.

LAPIS LAZULI: a sort of stone, from which that celebrated color *ultramarine* is made. It is found in many parts of the world, but that of Asia and Africa is the best. In a strong fire it melts without any addition into a fine white glass.

LARBOARD: among seamen, the left-hand side of the ship, when you stand with your face towards the head.

LATH: in building, a long, thin and narrow slip of wood, nailed to the rafters of a roof or the joists of a wall.

LATITUDE: the distance of any place from the equator, measured upon the meridian, in degrees, minutes and seconds. All places lying under the equator are said to have no latitude; and all others to have north or south latitude, according to their situation with respect to the equator.

LATTIMO: a name for a fine, milk-white sort of glass, made of crystal frit, calcined tin, and prepared manganese.

LAVA: the fused stony substance which issues from volcanoes. Cannon-balls are not unfrequently made of it, and of some small beautiful pieces snuff-boxes and other toys are manufactured.

LAUDANUM: in pharmacy, a name given to divers preparations of opium, chiefly in a liquid form.

LAVENDER: a perfume, consisting of the water drawn from the flowers of lavender by distillation. It is a native of the south of Europe, but may be cultivated in our gardens.

LAWN: a sort of clear or open worked cambric, manufactured in France and Holland, also in Great Britain.

LAZARETTO: a public building, hospital or pesthouse, for the reception of those afflicted with contagious disorders. The lazaretto of Marseilles is the finest in the world.

LEAD: one of the most useful metals. It is found abundantly in different parts of Europe, and in North and South America.* The lead mines of Missouri and Illinois are very productive.

LEAKAGE: in commerce, an allowance in the customs granted to importers of wine for the waste and damage the goods are supposed to receive by keeping.

LEATHER: the skins of various quadrupeds dressed in a particular manner for the use of manufacturers, whose business it is to make them up, according to their different employments. The butchers and others who flay them off the carcasses dispose of them raw or salted to the tanner and tawer; they to the morocco and other kinds of leather-dressers, who prepare them according to their respective arts, in order to vend them amongst the curriers, glovers, harness-makers, shoemakers, book-binders, and all in any way concerned in this article. To make leather *water-proof*, the following ingredients are employed:

Boiled linseed oil	1 lb.
Yellow wax	2 oz.
Spirit of turpentine	2 oz.
Burgundy pitch	1 oz.

Melt them over a slow fire; rub the leather with the mixture as often as it becomes dry, till thoroughly saturated.

LEE: an epithet to distinguish that half of the horizon to which the wind is directed, from the other part whence it arises, which latter is called to windward.

LEGER: the principal book of accounts kept by merchants and tradesmen, wherein every person's account is placed by itself, after being extracted from the journal.

LEMNIAN EARTH: a clay of a pale red color, which has its name from the island of Lemnos, where it is dug. It is used in medicine.

LEMONS: the fruit of the lemon-tree, growing in great abundance in Sicily, Spain and Portugal. The ports of Lisbon and Malaga are the principal shipping-places of lemons. The shipping of fruit from these places commences about the middle of September, and continues until the February following, after which time the article becomes scarce and dear. The lemons of the Bermuda islands are large and of a delicious flavor. The island of Zante abounds in lemons of a great size. Lemons are invariably shipped while their color is green, and they generally become quite yellow before they reach this country

LENTISK: the tree which produces the resin called mastich.

LETTER OF CREDIT is where a merchant or correspondent writes a letter to another, requesting him to credit the bearer with a certain sum of money.

LETTERS OF MARQUE AND REPRISAL are grantable by the law of nations, whenever the subjects of one state are oppressed and injured by those of another, and justice is denied by that state to which the oppressor belongs. Before granting letters of marque, government should demand that satisfaction be made to the party aggrieved; and in the event of such satisfaction not being made within a reasonable period, letters of marque and reprisal may be issued, authorizing the aggrieved party to attack and seize the property of the aggressor nation, without hazard of being condemned as a robber or pirate.

LIGHT-HOUSE: a name for a tower situated on a promontory or eminence on the sea-coast, or on rocks in the sea, for the reception of a light for the guidance of ships at night.

LIGHTER: a large, heavy boat, into which ships are lightened or unloaded, when they cannot approach the wharf. The manager of the boat is called a *lighterman;* and the money paid for conveyance thereby is called lighterage.

LIGNUM VITÆ: a species of wood, of great utility both in turnery and in pharmacy. The tree which produces it grows in most of the West India islands, but especially in Hayti and St. Croix.

LIME: one of those earthy substances which exist in every part of the known world. It is found purest in limestone, marble and chalk. Various parts of the United States produce lime in great abundance. It is very plentiful at Thomaston and Camden in Maine, where it is burnt for exportation. The limestone caverns of the Western States contain a profusion of this substance. Lime may be obtained by burning calcareous spars, or by dissolving oyster shells in muriatic acid.

LIMES: a species of dwarf lemon, which grows plentifully in the West Indies, and is to be met with in the south of Europe. It is very juicy, and the flavor is esteemed superior to that of a lemon.

LINEN: a species of cloth made of thread of flax or hemp. The chief countries in which linen is manufactured are Russia, Germany, Switzerland, Holland, Scotland and Ireland. Immense quantities of linen are exported from Ireland.

LINSEED. See FLAX-SEED.

LIQUID-AMBER: a resinous juice, flowing from a large tree, which grows in Virginia, Mexico, and other parts of America. It was formerly much used as a perfume, but is at present a stranger to the shops.

LIQUORICE: a root, which grows wild in many parts of France, Italy, Spain and Germany. It is cultivated in several parts of England. LIQUORICE-JUICE, the inspissated juice of the common liquorice root, is usually imported in rolls or cakes from Spain.

LISBON WINE: a white wine, of a fine sweet flavor, which we usually import from the city of that name.

LITHARGE: an oxide of lead. Potters use it for glazing their wares.

LITHOGRAPHY: the art of printing from stone.

LOADSTONE: a hard mineral body, of a dark gray color, with a metallic lustre, and possessed of the property of attracting iron. This singular substance has likewise the singular property of turning to the pole when suspended and left at liberty to move freely. Upon this remarkable circumstance the mariner's compass depends, an instrument which gives us such advantage over the ancients. The natural loadstone has the quality of communicating its properties to iron and steel. It is found in considerable masses in the north of Europe, China, Siam and the Phillippine isles.

LOGWOOD: the wood of a tree, a native of America, which attains the greatest perfection at Campeachy and in the West Indies. The wood is hard, compact, heavy, and of a deep red color internally, which it gives out both to water and alcohol. It is an article of great commercial importance, being extensively used as a dyewood. It is imported in logs, that are afterwards chipped.

LONG-BOAT: the largest boat belonging to a ship. It serves to bring goods, provisions, &c. to or from the ship, to land men, weigh the anchor, &c.

LONGITUDE: in navigation, the distance of a ship or place, east or west, from another, reckoned in degrees of the equator.

LOOM: a weaver's frame, whereby several distinct threads are woven into one piece.

LUGGER: a sort of vessel, usually heavily built, and rigged with a square sail.

LUMBER, in the coasting trade, means stowage-wood and small timber; as spars, joists, boards, planks, shingles, hoops, staves, &c. Maine exports vast quantities of lumber to the West Indies and to different parts of the United States.

LUSTRING: a species of light, shining silk.

LYCOPODIUM. The fine dust of lycopodium, or club-moss, is called by some, on account of its great inflammability, vegetable sulphur. The plant is of the creeping kind, and is common in dry and mountainous places, and in forests of fir-trees. The dust diffused or strewed in the air takes fire from a candle, and burns off like a flash of lightning. It is used in the London theatres. It strongly resists water, insomuch that if a handkerchief be strewed over with the dust, liquid may be tied up in it.

M.

MACE: one of the exterior coverings of the nutmeg. It is a warm aromatic, and usually comes from the East Indies in glass or porcelain vessels.

MACKEREL: a fish, which is a native of the European and American seas, appearing at stated seasons, and swarming in vast shoals round particular coasts. From Mr. C. Cushing's valuable report made to the House of Representatives, we gather the following interesting facts:—

The whole amount of tonnage employed in the cod and mackerel fisheries of the United States, for the year ending the 30th of September, 1834, was 107,430; of which, 48,725 tons belong to the mackerel fishery. Of this aggregate amount, 35,196 tons were owned in Massachusetts; 11,764 in Maine; 1,623 in New Hampshire; and 142 in Rhode Island. The vessels employed average from forty to fifty tons each; and are found to have amounted, in 1835, to about 900 in Massachusetts, and from 300 to 400 in the three other states. Each vessel has an average of about nine persons, of all ages; making about 8,000 for Massachusetts, and say 3,000 for Maine, New Hampshire, and Rhode Island.

Independently of the profit on their labor obtained by these persons, we have to consider that accruing on the construction and fitting out of the vessels, the manufacture of the barrels, the commerce on the salt consumed, the transportation of the fish coastwise, and all the subsidiary branches of industry connected with these its main departments.

And the mode in which the business is conducted renders it invaluable as a school of maritime enterprise and nautical industry. Some of the vessels employed in the fishery are owned by merchants or others, who employ them in it during three or four months of the season, and in the coasting trade or some other business the residue of the year. But the greater part of the vessels are owned by the fishermen themselves, or by them in connection with merchants or mechanics. It is no uncommon thing for several heads of families, who have sons of the age of nine years and upwards, to take a vessel, and man it from their families, and divide the proceeds among themselves; and as very young boys are thus capable of being useful in this pursuit, it is a great nursery of seamen for the navy and the merchant service. The crews are sometimes engaged on shares, receiving one half of the fish after they are salted; at other times, they are hired on wages. A very common method is for the skipper and one or more of the crew to take the vessel and hire the other hands; and pay to the owner, as charter, a fourth part of the proceeds, after deducting salt, barrels, butts, and some other supplies. By these means, the profits and incidental advantages of the business are made to diffuse themselves widely and thoroughly among the middling and poorer classes, without being accumulated, to any considerable extent, in the hands of capitalists.

From the general table of the quantity of mackerel packed in Massachusetts, it is apparent how steadily and greatly this fishery has increased in productiveness. Taking successive periods of five years as an index of the increase, we have for the beginning only 8,079 barrels; 8,866 for 1809; 1,349 for 1814, one of the years of the late war; 105,433 for 1819; 180,636 for 1824; 225,877 for 1829; and 252,884 for 1834. This rapid augmentation of the quantity taken, especially in the last twenty years, is one of the effects and the evidences of the unparalleled prosperity enjoyed by this country, *and especially those portions of it in which this article is consumed.*

The price of the article has, of course, fluctuated, according to the relative supply and demand; the first quality having taken the whole range of prices from $13 per barrel down to $4 50; and the supply, for the last three years, having fallen short of the demand, a gradual advance in prices has been the consequence.

A small portion of the mackerel, consisting chiefly of the poorest quality, or No. 3, is exported to foreign countries. It is not easy to ascertain the precise quantity exported, as the annual statement, printed by order of Congress, embraces all kinds of pickled fish under one head; probably the amount does not exceed 40,000 barrels. They are sent to the West Indies, to South America, to some ports of the Mediterranean, and to the East Indies.

But the principal market for this fish is in the United States. Philadelphia, New York, Baltimore, and New Orleans have taken the largest quantities hitherto; but more or less is shipped to most of the chief ports along the seaboard, from New York to New Orleans. Thus far, Philadelphia, by its rapid and steady increase of demand, has held the lead of other ports. From 1820 to 1825, that city required from 30,000 to 40,000 barrels as its yearly supply for its own consumption, its interior trade, and its foreign or domestic export. It now receives three times that quantity, and about one third part of the whole product of the fishery. In the Southern States, also, the demand increases with the increased facilities of interior transportation, and must continue to be enlarged as the interior of the country goes on acquiring access to markets and added population and prosperity.

The season for the first appearance of mackerel, on those parts of our coast where they are usually taken, is from the 20th of April to the 1st of May, according as the season is more or less forward; at which time they strike on the shore soundings off the capes of Chesapeake and Delaware. Betwen the latter place and the Egg Harbors, they are usually plentiful for fifteen or twenty days, within a few leagues of the land; and mackerel vessels, which are on the ground seasonably, meet in general with good success, if the weather prove to be favorable. After which, the mackerel move to the north-east, scattering over a large space of ground from near the shore to the soundings inside the gulf stream, and extending down the coast off Long Island and Block Island to Nantucket, which they reach early in June. Sometimes they collect more in bodies off Long or Block Islands, and are taken plentifully for a few days; after which they proceed north, through the south channel, between the Vineyard Islands, into Massachusetts Bay. They reach that bay from the 20th of June to the 1st of July, and continue there until late in November.

MADDER: the roots of a plant, of which there are several varieties. Madder is very extensively used in dyeing red; and though the color which it imparts be less bright and beautiful than that of cochineal, it has the advantage of being cheaper and more durable. It is a native of the south of Europe, Asia Minor and India. Madder was formerly almost entirely derived from Holland; but large quantities are now imported from France and Turkey.

MADEIRA, so called from the island of that name, is a wine that has long been in extensive use in this and other countries. Plants of the vine were conveyed from Crete to Madiera in 1421, and have succeeded extremely well. The trade in Madeira wine is carried on at Funchal, the capital of the island.

MAGNESIA: a white and spongy substance, usually obtained by the decomposition of the sulphate of magnesia. It is much used in medicine.

MAHOGANY: the wood of a tree growing in the West Indies and Central America. Mahogany is one of the most majestic and beautiful of trees. Its trunk is often forty feet in length, and six feet in diameter; and it divides into so many massy arms, and throws the shade of its shining green leaves over so vast an extent of surface, that few more magnificent objects are to be met with in the vegetable world. Mahogany is imported principally from Honduras and Campeachy; it is abundant, however, in Cuba and Hayti. Not long since, Messrs. Broad-wood, the distinguished piano-forte manufacturers of London, gave the enormous sum of $15,000 for three logs of mahogany! These logs, the produce of a single tree, were each about fifteen feet long and thirty-eight inches square. They were cut into veneers of eight to an inch. The wood was particularly beautiful, capable of receiving the highest polish, and when polished reflecting the light in the most varied manner, like the surface of a crystal.

MAIL-COACH: emphatically called "*the mail*," from its being a carriage of the coach kind, expressly appropriated to the conveyance of letters in leathern bags, formerly called mails.

MAIZE, or *Indian Corn:* the only species of corn cultivated in America before its discovery. There are three or four varieties. It is raised in immense quantities in the Western and Southern States, as also in every part of the Union. When ground it forms a bread, which is much eaten.

MALMSEY WINE: a very rich species of the Madeira. It is made from grapes grown on rocky grounds, exposed to the full influence of the sun's rays, and allowed to remain on the vine till they are over-ripe.

MALT: a term applied to designate grain, which, being steeped in water, is made to germinate to a certain extent, after which the process is checked by the application of heat. This evolves the *saccharine* principle of the grain, which is the essence of malt. Rice, and almost every species of grain, has been used in malting; but in Europe, and especially in England, malt is prepared almost wholly from barley. It is the principal ingredient in the manufacture of beer, and is not employed for any other purpose.

MANGANESE: a metal which, when pure, is of a grayish color, like cast iron. It is used in glazing black earthenware, for giving colors to enamels, and in the manufacture of porcelain. It is the substance generally used by chemists for obtaining oxygen gas.

MANNA: the concrete juice of a species of ash growing in the south of Europe. The greater part of the manna of commerce is obtained by making incisions in the tree, and gathering the juice in baskets, where it forms irregular masses of a reddish or brownish color. Manna is imported in chests, principally from Sicily and Calabria.

MANIFEST, in commercial navigation, is a document signed by the master of a vessel, containing the name or names of the places where the goods on board have been laden, and the place or places for which they are respectively destined; the name and tonnage of the vessel, the name of the master, and the name of the place to which the vessel belongs; a particular account and description of all the packages on board, with the marks and numbers thereon, the goods contained in such packages, the names of the respective shippers and consignees, as far as such particulars are known to the master, &c.

MAPLE-SUGAR: a sugar extrated from the maple tree, which abounds in different parts of the United States.

MARBLE: a kind of stone, composed chiefly of lime. It is found of a great variety of colors. We have many fine marble quarries in the United States, but still are in the habit of importing considerable quantities from Italy and other foreign quarters.

MASSICOT: white lead calcined over a moderate fire. It is employed in oil-painting, and in glazing pottery.

MASTICH, or MASTIC: a resinous substance, which is the produce of a tree, growing in the Levant, and particularly abundant in the island of Chios. It is used in the composition of varnishes. The Turkish women chew mastich habitually, pretending that it improves the breath.

MEAD: a preparation of honey and water.

MERCURY: a metallic substance, having the appearance and brilliancy of melted silver. It is found in Spain, Germany, China and South America.

MEZZOTINTO: a kind of engraving, so named as nearly resembling paint, the word importing half-painted.

MINIUM: in the arts, red lead or oxide of lead.

MINT: the place in which the public money is coined. There is an United States mint at Philadelphia, and another at New Orleans.

MOHAIR: the soft and silvery hair of the mohair goat, which is a native of Angora. It is woven into camlets and other manufactures.

MOLASSES: the gross fluid matter that remains of sugar after refining. It is exported in hogsheads principally from the West Indies, and is perniciously used in the distillation of rum.

MONEY. In the earliest ages, the ordinary way of traffic, no doubt, was by exchanging one commodity for another; but in process of time it was found necessary to have some common standard, according to which all other things should be estimated. The first account we have of money is in the time of Abraham, who paid four hundred shekels for a burying-place.

When first used as money, the precious metals were in an unfashioned state, in bars or ingots. The parties having agreed about the quantity of metal to be given for a commodity, that quantity was then weighed off. But this, it is plain, must have been a tedious and troublesome process. Undoubtedly, however, the greatest obstacle that would be experienced in early ages to the use of gold and silver as money, would be found to consist in the difficulty of determining the degree of their purity with sufficient precision; and the discovery of some means by which their weight and fineness might be readily and correctly ascertained, would be felt to be indispensable to their extensive use as money. Fortunately these means were not long in being discovered. The fabrication of coins, or the practice of impressing pieces of the precious metals with a stamp, indicating their weight and purity, belongs to the remotest antiquity. And it may safely be affirmed, that there have been very few inventions of greater utility, or that have done more to hasten on improvement.

Inaccurate notions with respect to the influence of coinage seem to have given rise to the opinion, so long entertained, that coins were merely the *signs* of values! But it is clear that they have no more claim to this designation than bars of iron or copper, sacks of wheat, or any other commodity. They exchange for other things because they are desirable articles, and are possessed of real intrinsic value. A draft, check, or bill, may not improperly, perhaps, be regarded as the sign of the money to be given for it. But *that money* is nothing but a commodity; it is not a sign—it is the thing signified.

No certain estimate can ever be formed of the quantity of money required to conduct the business of any country, this quantity being, in all cases, determined by the value of money itself, the services it has to perform, and the devices used for economizing its employment. Generally, however, it is very considerable; and when it consists wholly of gold and silver, it occasions a very heavy expense. There can, indeed, be no doubt that the wish to lessen this expense has been one of the chief causes that have led all civilized and commercial nations to fabricate a portion of their money of some less valuable material. Of the various substitutes resorted to for this purpose, paper is, in all respects, the most eligible. Its employment seems to have grown naturally out of the circumstances incident to an advancing society. When government becomes sufficiently powerful and intelligent to enforce the observance of contracts, individuals possessed of written promises from others, that they will pay certain sums at certain specified periods, begin to assign them to those to whom they are indebted; and when the subscribers are persons of fortune, and of whose solvency no doubt can be entertained, their obligations are readily accepted in payment of debts. But when the circulation of promises or bills in this way has continued for a while, individuals begin to perceive that they may derive a profit by issuing them in such a form as to fit them for being readily used as a substitute for money in the ordinary transactions of life. Hence the origin of bank notes.

An individual in whose wealth and discretion the public have confidence, being applied to for a loan, say of $5000, grants the applicant his bill or note, payable on demand, for that sum. Now, as this note passes, in consequence of the confidence placed in the issuer, currently from hand to hand as cash, it is quite as useful to the borrower as if it had been gold; and supposing that the rate of interest is five per cent, it will yield, so long as it continues to circulate, a revenue of $250 a year to the issuer. A banker who issues notes, coins, as it were, his credit. He derives the same revenue from the loan of his written promise to pay a certain sum, that he could derive from the loan of the sum itself, or of an equivalent amount of produce. And while he thus increases his own income, he at the same time contributes to increase the wealth of the public. Ever since the introduction of bills, almost all great commercial transactions have been carried on by means of paper only. Notes are also used to a very great extent in the ordinary business of society; and while they are readily exchangeable at the pleasure of the holder for coins, or for the precise quantities of gold or silver they profess to represent, their value is maintained on a par with the value of these metals; and all injurious fluctuations in the value of money are as effectually avoided as if it consisted wholly of the precious metals.

MOROCCO: a fine kind of leather, prepared of the skins of goats, imported from the Levant, Barbary, Spain, &c. It is of different colors, and is much used in the binding of books.

MORTGAGE signifies a pawn of land or tenement, or any thing immovable, laid or bound for money borrowed, to be the creditor's forever if the money is not paid at the day agreed upon. He who pledges this pawn, or gage, is called the mortgagor, and he who takes it the mortgagee.

MOTHER-OF-PEARL: the shell of the pearl-bearing oyster, which dwells in the ocean of either Indies. It is used in inlaid work, and in the manufacture of various ornaments.

MUSK: a very strong-scented substance, obtained from a species of deer, inhabiting the Alpine mountains of the east of Asia.

MUSLIN is derived from the word *mousale* or *mouseln*, a name given to it in India, where large quantities are made. It is a fine thin sort of cotton cloth, with a downy nap on the surface. Formerly all muslins were imported from the East, but now they are manufactured in immense quantities in Europe.

MYROBALANS: dried fruits of the plum kind, brought from Bengal and other parts of India.

MYRRH: a resinous substance, the produce of an unknown tree, growing in Arabia and Abyssinia. It is imported in chests, and has a bitter, aromatic taste. Good myrrh is translucent, of a reddish yellow color, brittle, breaking with a resinous fracture, and easily pulverized.

N.

NANKEEN, or NANKIN: a species of cotton cloth, closely woven. It takes its name from Nankin in China, where the reddish thread of which the stuff is made was originally spun. This manufacture has been carried to great perfection in the East Indies, where vast quantities of white, pink, and yellow nankeens are made.

NAPTHA. A fine, thin, fragrant, colorless oil, which issues out of white, yellow, or black clays, in Persia or Media, is known by this name. Its smell is very different from that of vegetable oils; it dissolves resins and balsams, but neither gum resins nor caoutchouc.

NAVIGATION: the art or act of sailing, or conducting a vessel from one place to another. A competent navigator should have a perfect knowledge of the figure and motion of the earth, and the various imaginary lines upon it, so as to be able to ascertain the distance and situation of places with respect to one another. He should also be acquainted with the several instruments employed in measuring the ship's way; such as the log, half-minute glass; quadrant, to take the altitude of the sun and stars; compass, to represent the sensible horizon; and azimuth compass, to take the azimuth and amplitude of the sun, in order to know the variations of the magnetic needle. He should have an accurate knowledge of maps and charts of the lands and seas; together with the depth of water, the times and setting-in of the tides upon the coasts that he may have occasion to visit; also the currents; of the mould and trim of the ship, and the sail she bears, that so a due allowance may be made for leeway. By the help of these, he may at all times know the place the ship is in, which way he must steer, and how far he has to run to gain his intended port. The names of the two great divisions of navigation are taken merely from the kind of chart made use of. *Plane sailing* is that in which the plane chart is made use of; and *Mercator's sailing*, or globular sailing, is that in which Mercator's chart is used. The application of these to practical navigation being parts of the common education of a navigator, it is unnecessary to say more here.

NEEDLES: well-known small instruments, made of steel, pointed at one end and pierced at the other, used in sewing, embroidery, tapestry, &c. Needles make a very considerable article in commerce, though there is scarcely any commodity cheaper, the consumption of them being almost incredible. The sizes are from No. 1, the largest, to No. 25, the smallest. In the manufacture of needles, German and Hungarian steel are of most repute. In making needles, the first thing is to pass the steel through a coal fire, and then under a hammer, to bring it out of its square figure into a cylindrical one. This done, it is drawn through a large hole of a wire-drawing iron, returned into the fire, and drawn through a second hole of the iron, smaller than the first, and thus successively from hole to hole, till it has acquired the degree of fineness required for that species of needles, observing every time it is to be drawn that it is greased over with lard, to render it more manageable. The steel, thus reduced to a fine wire, is cut in pieces of the length of the needle intended. These pieces are flattened at one end on the anvil, in order to form the head and eye; they are then put into the fire to soften them farther, and thence taken out and pierced in the flat part on the anvil, by force of a puncheon of well-tempered steel, and laid on a leaden block, to bring out, with another puncheon, the little piece of steel remaining in the eye. The corners are then filed off the square of the heads, and a little cavity filed on each side of the flat of the head; this done, the point is formed with a file, and the whole filed over; they are then laid to heat red hot on a long, flat, narrow iron, crooked at one end, in a charcoal fire, and when taken out are thrown into a basin of cold water to harden.

When they are thus hardened, they are laid in an iron shovel on a fire, more or less brisk in proportion to the thickness of the needles. This serves to temper them and take off their brittleness. They are then straightened one after another with a hammer; and finally being polished with emery-dust, they are put up into packets of two hundred and fifty each, and are ready for sale.

NEPHRITIC WOOD: a wood of a very dense and compact texture, brought to us from Mexico, in its natural state, and covered with its bark. It is used in medicine.

NEWSPAPER: an article of too much importance to commerce to be omitted here. Newspapers are publications in numbers, consisting commonly of single sheets, and published daily, weekly, or at some other determinate period. Their utility to commerce is unquestionable. The advertisements they circulate, the variety of facts and information they contain as to the supply and demand of commodities in all quarters of the globe, their prices, and the regulations by which they are affected, render newspapers indispensable to commercial men, supersede a great mass of epistolary correspondence, raise merchants in remote places towards an equality, in point of information, with those in the great marts, and wonderfully quicken all the movements of commerce. In the United States, newspapers are more numerous than in any other country on the face of the globe. The total number of newspapers annually issued in the United States may be estimated at more than 60,000,000. The London newspapers are remarkable for the great mass and variety of matter which they contain, the rapidity with which they are printed and circulated, and the accuracy and copiousness of their reports of debates. These results are obtained by a large expenditure and considerable division of labor. The reports of parliamentary proceedings are obtained by a succession of able and intelligent reporters, who relieve one another at intervals of three quarters of an hour, or occasionally less. A newspaper cannot aim at copious and correct reports with less than ten reporters for the House of Commons; and the expense of that part of a morning newspaper's establishment alone exceeds $15,000 a year. In this country, the chief source of profit to a daily newspaper establishment is in the advertising.

NICARAGUA WOOD: a kind of dye-wood of a very bright red color, brought from Nicaragua, in South America, where the tree which produces it grows in great abundance. It is sometimes called peach wood.

NICKEL: a scarce metal, of a fine white color. It is attracted by the magnet, and not altered by exposure to the air, nor by being kept under water. It is employed in potteries and in the manufacture of porcelain.

NINZIN : a root greatly esteemed in the East, bearing some resemblance to ginseng. It is collected on the mountains of Corea. The Chinese give it as a restorative cordial and provocative.

NITRE. See SALTPETRE.

NONPAREIL : a small-sized type, on which small Bibles and common prayer-books are often printed. Also the name of a celebrated apple.

NOTES, PROMISSORY. Promissory notes are merely written promises to pay the sums therein written either specifically to a particular person, or generally to any person who may be the bearer of them, or sometimes to the order of a particular person, at the time specified; which, in bankers' notes, is usually on demand.

NUTMEG : the kernel of a large fruit not unlike the peach. The best nutmegs are brought from the East Indies in stone jars. The round nutmeg is preferred to that which is oblong. The fruit nowhere attains the same perfection as in the Moluccas.

NUX VOMICA : the fruit of a plant growing in various parts of the East Indies. It is a very virulent poison.

O.

OAKUM : old ropes untwisted and pulled out into loose hemp, in order to be used in caulking the seams, treenails and bends of a ship, for stopping leaks, &c.

OCHRE : combinations of earths with the oxide of iron. Ochres are of various colors, as red, blue, yellow, brown, green, &c. They are found in abundance in different parts of North America, and the Indians are in the habit of smearing their faces with them. Ochres are of extensive use as colors, not only in oil but in water painting.

OCTAVO signifies a sheet of paper folded into eight leaves.

OFFING : in the sea language, that part of the sea a good distance from shore, where there is deep water, and no need of a pilot to conduct the ship. Thus if a ship from shore is seen sailing out to seaward, they say she stands for the offing; and if a ship, having the shore near her, has another a good way without her, or towards the sea, they say that ship is in the offing.

OIL. The term OIL is applied to designate a number of unctuous liquors, which, when dropped upon paper, sink into it, and make it seem semi-transparent, or give it what is called a greasy stain. These bodies are very numerous, and have been in use from time immemorial. Chemists have divided them into two classes; namely, *volatile* and *fixed* oils.

Volatile oils, called also *essential oils*, are liquid—often almost as liquid as water—very combustible, soluble in alcohol, and they evaporate without leaving any stain on paper. By this last test, it is easy to discover whether they have been adulterated with any of the fixed oils. Let a drop of the volatile oil fall on a sheet of writing paper, and then apply a gentle heat to it; if it evaporates without leaving any stain upon the paper, the oil is pure; but if it leaves a stain, it has been contaminated.

Volatile oils are almost all obtained from vegetables, and they exist in every part of plants—the root, the bark, the wood, the leaves, the flower, and even the fruit. When these oils are contained in great abundance in plants, they are sometimes obtained by simple expression. This is the case with oil of oranges, of lemons, and bergamot; but in general they can only be obtained by distillation. The part of the plant containing the oil is put into a still with a quantity of water, which is distilled off by the application of a moderate heat. The oil comes over along with the water, and swims upon its surface in the receiver. By this process are obtained the oil of peppermint, thyme, lavender, and a great many others, which are prepared and employed by the perfumer; others are procured by the distillation of resinous bodies. This is the case in particular with oil of turpentine, which is obtained by distilling a kind of resinous juice, that exudes from the pine, the juniper, and other trees.

The color of the volatile oils is as various as their other properties. A great number are limpid and colorless, as oils of turpentine, lavender, aniseed; some are yellow, as spike, bergamot; some are blue, as camomile, motherwort; others green, as pepper, wormwood, cajeput, &c.; others, though at first colorless, become yellow or brown by age, as cloves, cinnamon, sassafras.

Fixed oils are distinguished by an unctuous *feel* and a mild taste; they are liquid, or easily become so when exposed to a gentle heat; very combustible; insoluble in water, and nearly so in alcohol; and they leave a greasy stain upon paper.

These oils, which are called fat or expressed oils, are numerous, and are obtained partly from animals and partly from vegetables, by simple expression. As instances, may be mentioned whale oil or train oil, obtained from the blubber of the whale and from cod; olive oil, obtained from the fruit of the olive; linseed oil and almond oil, obtained from linseed and almond kernels. Fixed oils may also be extracted from poppy seeds, hemp seeds, beech mast, and many other vegetable substances.

Fixed oil, when in the state of vapor, takes fire on the approach of an ignited body, and burns with a yellowish white flame. It is upon this principle that candles and lamps burn. The tallow or oil is first converted into a state of vapor in the wick; it then takes fire, and supplies a sufficient quantity of heat to convert more oil into vapor; and this process goes on while any oil remains. The wick is necessary to present a sufficiently small quantity of oil at once for the heat to act upon.

The drying oils are used as the vehicle of paints and varnishes. Linseed, nut, poppy and hemp-seed oils belong to this class. These oils in their natural state possess the property of drying oils but imperfectly. To prepare them for the use of the painter and varnish maker, they are boiled for some time in an iron pot, and sometimes burnt, till they become viscid. When they burn for some time, their unctuous quality is much more completely destroyed than by any method that has been practised. Hence it is followed frequently in preparing the drying oils for varnishes, and always for printers' ink, which requires to be as free as possible from all unctuosity.

Nut oil has been found preferable to all other oils for printers' ink; though the dark color which it acquires during boiling renders it not so proper for red ink as for black. Linseed oil is considered as next after nut oil in this respect. Other oils cannot be employed, because they cannot be sufficiently freed from their unctuosity. Ink made with them would be apt to come off and smear the paper while in the hands of the book-binder, or even to spread beyond the mark of the types, and stain the paper yellow.

OLIBANUM: a gum resin, the produce of a large tree growing in Arabia and India. It is imported in chests. The best is of a pink color, brittle, and adhesive, when warm; when burnt, the odor is very agreeable; its taste is bitterish, and somewhat pungent and aromatic; it flames for a long time, with a steady clear light, which is not readily extinguished.

OLIVES: a fruit which yields a large quantity of oil, the produce of the *olea*, olive tree. Olives intended for preservation are gathered before they are ripe. In pickling, the object is to remove their bitterness, and to preserve them green by impregnating them with a brine of aromatized sea salt; for this purpose various methods are employed. The wood of the olive tree is beautifully veined, and has an agreeable smell. It is in great esteem with cabinet-makers, on account of the fine polish of which it is susceptible. The olive is much cultivated in the south of France, Spain, Italy and Portugal. The Lucca olives, which are smaller than the others, have the weakest taste; the Spanish, or larger, the strongest; the Provence, which are of middling size, are generally the most esteemed, though many prefer the Spanish.

OLIVE OIL. The olive tree is principally cultivated for the sake of its oil. This is an insipid, inodorous, yellowish fluid, inflammable, incapable of combining with water, and nearly insoluble in alcohol. It is the lightest of all the fixed oils, and is very extensively used, particularly in Greece, Italy, Spain and France, as an article of food, and in medicine, and the arts.

The ripe fruit is gathered in November, and immediately bruised in a mill, the stones of which are set so wide as not to crush the kernel. The pulp is then subjected to the press in bags made of rushes; and by means of a gentle pressure, the best, or *virgin* oil, flows first; a second, and afterwards a third quality of oil is obtained by moistening the residuum, breaking the kernels, &c., and increasing the pressure. When the fruit is not sufficiently ripe, the recent oil has a bitterish taste, and when too ripe it is fatty. After the oil has been drawn, it deposits a white, fibrous, and albuminous matter; but when this deposition has taken place, if it be put into clean glass flasks, it undergoes no farther alteration; the common oil cannot, however, be preserved in casks above a year and a half or two years. It is sometimes adulterated by the admixture of poppy oil.

The best olive oil is said to be made in the vicinity of Aix, in France. That which is brought from Leghorn in chests containing thirty bottles, or four English gallons, is also very superior. Olive oil is the principal article of export from the kingdom of Naples. By far the largest portion of the olive oil brought to this country is from Italy; but Spain supplies us with a considerable quantity.

ONYX: one of the semi-pellucid gems, with variously colored zones, but none red. It is found in different parts of the East Indies and in America.

OPAL: a stone, of which there are several varieties, found in different parts of Europe, particularly in Hungary; also in America and the East Indies. The color of the opal is white or pearl gray, and when held between the eye and the light is pale red, or wine yellow, with a milky translucency. By reflected light, it exhibits, as its position is varied, elegant irridescent colors, particularly emerald green, golden yellow, flame and fire red, violet, purple, and celestial blue, so beautifully blended as to captivate the sight. When the color is arranged in small spangles, it takes the name of the harlequin opal. Sometimes it exhibits only one of the above colors, and of these the most esteemed are the vivid emerald green and the orange yellow. When the stone possesses the latter of these colors, it is called the golden opal.

The opal, in all ages, has been highly esteemed. The history of the Roman senator, who preferred death rather than give up his opal ring to the Emperor Nero, must be familiar to readers of ancient history. Among the Eastern nations, the opal ranks higher than in Europe.

OPHITES: a kind of variegated marble, of a dusky green ground, sprinkled with spots of a dark green color.

OPIUM: the concrete juice of the white poppy, which is most probably a native of Asia. Opium is chiefly prepared in India, Turkey, and Persia; but the white poppy is extensively cultivated in France and other parts of Europe, on account of its capsules, and of the useful bland oil obtained from its seeds.

The poppy is an annual plant, with a stalk rising to the height of three or four feet; its leaves resemble those of the lettuce, and its flower has the appearance of a tulip. When at its full growth, an incision is made in the top of the plant, from which there issues a white milky juice, which soon hardens, and is scraped off the plants and wrought into cakes. In India, these are covered with petals of the plant to prevent their sticking together, and in this situation are dried, and packed in chests lined with hides, each containing forty cakes, and weighing two maunds, or one hundred and forty-nine pounds and one third; they are exported in this state to places where the opium is consumed. Turkey opium is in flat pieces covered with leaves.

Good Turkey opium has been found to yield nearly three times the quantity of *morphia*, or of the peculiar principle of the drug, that is yielded by the East India opium. The raising of opium is a very hazardous business; the poppy being a delicate plant, peculiarly liable to injury from insects, wind, hail, or unseasonable rain. The produce seldom agrees with the true average, but commonly runs in extremes: while one cultivator is disappointed, another reaps immense gain; one season does not pay the labor of the culture, another, peculiarly fortunate, enriches all the cultivators.

Opium is pretty extensively used, both for chewing and smoking, in Turkey and India; but its great consumption is in China and the surrounding countries, where the habit of smoking it has become almost universal. The Chinese boil or seethe the crude opium, and by this process the impurities, resinous and gummy matter, are separated, and the remaining extract only is reserved for use. Thus prepared, the drug loses its ordinary strong and offensive aromatic odor, and has even a fragrant and agreeable perfume.

The supplies for the Chinese market are derived from India and Turkey, but principally from the former. The government of China has issued edict upon edict, forbidding the importation and consumption of the drug, but without effect. Most of the authorities openly connive at the proceedings of the smugglers, while the few who might be desirous to enforce the law are wholly without the power; so that the trade is conducted with facility and security. It was first carried on at Whampoa, about fifteen miles below Canton; next at Macao, whence it was driven by the exactions of the Portuguese; and now the principal *entrepot* is in the bay of Lintin. The opium is kept on board ships, commonly called receiving ships, of which there are often ten or twelve lying together at anchor. The sales are mostly effected by the American and English agents in Canton, who give orders for the delivery of the opium, which, on his producing the order, is handed over to the Chinese smuggler, who comes alongside at night to receive it. When it is landed, the laws are equally set at defiance in its conveyance throughout the country; and public smoking houses are said to be everywhere established.

Opium is a powerful narcotic. The effects on those who are accustomed to take it in considerable quantities are highly exhilarating; it produces a kind of pleasing delirium, in which the imagination is vividly employed in contemplating the most delightful images, and forming the most extravagant combinations of ideas: but the depression which ensues, when its effects have subsided, is proportionably great. The evil consequences which arise from this are more serious than those from the immoderate use of wine; the most dreadful nervous irritation and debility are experienced, and the strength of the body and the powers of the mind are soon prostrated.

OPODELDOC: a solution of soap in alcohol, with the addition of camphor and volatile oils. It is used externally for rheumatic pains, sprains, bruises, and other like complaints.

OPOPONAX: a resin, obtained from a plant which is a native of the countries round the Levant. The milky juice, when dried in the sun, constitutes the opoponax. It is brought from Turkey.

ORANGES: a well-known fruit, cultivated in the south of Europe and in the West India islands, and often in our green-houses. The best come from the Azores and

Spain; very good ones are also brought from Portugal, Italy, Malta and other places. The West India oranges are very sweet and delicious, but they do not keep for any length of time.

ORCHILLA WEED: a whitish moss, yielding a rich purple tincture, used for dyeing. It is found in the islands of the Archipelago, and also in those near the African coast. The preparation of orchilla was long a secret known only to the Florentines and Hollanders. Orchilla, or orchil, as it is sometimes called, is generally sold in form of cakes, but sometimes in that of moist pulp.

ORDNANCE: a general name for all sorts of great guns used in war.

ORGOL, or ARGOL: the tartar or salt from the lees of wine, used by dyers in giving a madder-red color, and by pin-makers in whitening their pins. This substance forms a thick crust, remarkably hard, on the sides of the vessels in which wine is kept; and as part of the fine dregs of the wine adhere to it, the tartar of the white wines is of a grayish white color, and that of red wine of a red color, and is called red argol. The marks of good argol of either kind are its being thick, brilliant, hard, brittle, and a little earthy. That brought from Germany is esteemed the best, on account of being taken out of those great tuns wherein the Rhenish wines are deposited in the merchants' vaults, and in which it is sometimes permitted to collect to so extraordinary a consistence, that when in course of time the wood work and other materials, whereof the tuns are formed, become rotten, the wine is actually contained and retained by the coats of tartar, which, of themselves, constitute perfect vessels.

ORIGANUM: oil obtained from the leaves of the wild marjoram. It is a cure for the chilblains.

ORPIMENT: the name usually given to sulphuret of arsenic. When artificially prepared, it is the form of a fine yellow-colored powder; but it is found native in many parts of the world, particularly Turkey, the East Indies and Bohemia. Its principal use is a coloring drug among painters, bookbinders, &c.

ORSEDEW, or DUTCH GOLD: an inferior sort of gold leaf, prepared of copper and zinc. It is sometimes called *leaf* brass. It is principally manufactured in Manheim.

ORRIS: a sweet-scented powder, produced by pulverizing the root of the same name. This root is white, about the thickness of a man's thumb, and is brought to us from Florence, in the neighborhood of which city it grows spontaneously. The dry roots of the Florentine orris are entirely mild, and said to be a medicine of good service in disorders of the breast. They are used in the manufacture of tooth-powder and articles of perfumery. The root produces an essential oil in great abundance, which may be extracted with little difficulty.

ORLEON. IRON: a particular sort of bars of iron, made for the manufacture of wire.

ORMIUM: a metal of a dark blue color, which exists in platina.

OSNABURGH: a coarse linen cloth, manufactured in the city of that name.

OSTRICH FEATHERS: the fine feathers of the ostrich. They form a beautiful ornament for the head. The colors are generally black and white; though some of them are gray.

Ostrich feathers are generally dried and dressed by the feather-dressers. They are brought to us from Africa, and particularly from the coast of Barbary. Immense quantities are bought up by the merchants of Leghorn, who procure them from Jew dealers, established in several parts of Africa, especially in Tunis, Alexandria and Madagascar.

OTTA, or Ottar of Roses: the essential oil of roses. It comes to us under this name from India, also from Smyrna. It is obtained by the distillation of rose leaves with water. The quantity of essential oil to be obtained from the rose is very precarious and uncertain, as it depends not only on the skill of the distiller, but also on the quality of the roses. Even in Europe, where the chemists are so perfect in their art, Hoffman obtained only about two ounces from one hundred pounds of rose leaves.

P.

PACKET: a vessel, which carries passengers from one place or port to another. The establishment of regular lines of packets from New York to foreign ports, and also to every principal port in the United States, has been of great benefit to that enterprising city. The principal foreign packets are those to Liverpool and to Havre. There are about twenty packet ships employed between New York and Liverpool, distributed in four *lines*. Packets for Liverpool from New York sail on the 1st, 8th, 16th, and 24th of each month throughout the year, and on the same days in each month from Liverpool for New York. These packet ships are generally from five hundred to five hundred and eighty tons burthen each. They are American property, and built chiefly in New York, of beautiful workmanship, and fitted up with every convenience for passengers, and in the most expensive and splendid style.

PALM OIL: an oil obtained from the fruit of several species of palms, but especially from those growing on the west coast of Africa, to the south of Fernando Po, and in Brazil. It is frequently mixed up with soap and used as a cosmetic. It is sometimes imitated with hog's lard, colored with tumeric, and scented with Florentine orris root.

PAPER: sheets of thin matter made of some vegetable substance. The first manufactured paper of which we have any record is the celebrated papyrus, made of a species of reed growing in Egypt on the banks of the Nile. Paper was prepared from the inner bark of the stem by dividing it with a kind of needle into thin plates or pellicles, each of them as large as the plant would admit. Of these strata the sheets of paper were composed. Sufficient evidence of the abundant use of the papyrus is to be found in the fact, that nearly eighteen hundred manuscripts written on paper of this description have been found in the ruins of Herculaneum.

Paper made of cotton entirely superseded the papyrus in the course of time, as being much more durable and better calculated for all the purposes to which paper is ordinarily applied. It cannot be exactly ascertained when this manufacture was first introduced. Many proofs are afforded that in the beginning of the twelfth century cotton paper was commonly used in the Eastern empire for books and writings; but it was not deemed sufficiently durable for important documents, for which purpose parchment was still employed.

The fabrication of this kind of paper has been a flourishing branch of industry in the Levant for many centuries, and is carried on with great success even at the present time. The paper produced from cotton is very white, and of a fine grain, but not so well adapted for writing upon as the paper made of linen. Much ingenuity must have been exercised, and many previous experiments must have been required, successfully to reduce the cotton to a pulpy substance, and to conduct the subsequent process, so as to render this material suitable to the purposes of writing. After this first great step, the adaptation to a similar use of linen rags and other fibrous materials called comparatively but for little invention.

The material of which paper is now made is only the rags and worn-out shreds of linen, which are generally bought up by pedlers, who travel all over the country and collect them in small quantities. They then come into the hands of the rag merchant, who is a considerable dealer, and he sells them to the paper-maker. The first process is to sort these rags; and this is usually done in a room where are a number of women seated, with each a parcel of divisions before her, five or six, into one of which she casts each separate piece, according to its quality. They are then to be cleansed, which is done by washing them with hot water, by a mill.

The process of reducing the rags to shreds, and to a pulp, used formerly to be by pounding them; it is now done by cutting them. A large roller, full of knives, turns round in a trough, which is also stuck full of similar blades facing the opposite way; the rags are put in with a proper quantity of water. As the roller or cylinder turns with great rapidity, it cuts every thing minutely fine, to a pulp, in a very little time. This is called half stuff. Frequently, at this stage of the process, the rags are bleached, to take out all stains and color from them, and make them perfectly white; this bleaching consists in exposing them to the action of a sulphuric gas, which quickly discharges all color. The rags must be taken out as soon as the color vanishes, and well washed, else this same gas would destroy the rags themselves. When the pulp is thoroughly comminuted and bleached, it is put into a cistern or vat, mingled with such a quantity of water as will suit for dipping out.

The next process is called couching. A mould, as it is termed, is a sort of sieve; consisting of a square frame about an inch deep, with a bottom of brass wires very closely placed. This is dipped into the vat and becomes filled with pulp. The water drains away through the interstices of the wires, and leaves a flat, thin layer of pulp. The marks of the wires may be seen, if the paper be held up to the light. This layer is carefully taken out and placed on a square of felt, or coarse cloth. Another sheet, and another piece of felt, are placed on, and on, till the heap contains six quires, or one hundred and forty-four sheets of paper, which is called a post. The weight of the heap presses the sheets a little; but when a post is made, the whole is smartly pressed, felts and all, which squeezes out most of the superfluous water. Sheet by sheet is then separated from the felt and laid one on another. They are pressed again, and then hung up to dry.

The next operation is sizing, that is, saturating them with a weak sort of glue, mixed with alum, into which, as hot as the hand can bear, each sheet is dipped. This makes it hold ink; otherwise the ink would run, just as it does if you try to write upon blotting-paper. The sheets are hung up to dry again. They are frequently pressed, and at last with great violence, to make them flat and smooth. The damaged sheets are then picked out, which make the two outside quires. Twenty-four sheets make a quire; and twenty quires, which make a ream, are tied up together, in wrappers, for sale.

This is the process for manufacturing fine writing paper. It is made of various sizes, and of various qualities, for printing, writing, or drawing. It is also made of various degrees of fineness: as white, brown, blue, and common brown paper. The coarser sorts are made of coarser materials, even old ropes and sacking.

Paper may be dyed of various colors. Marbled paper is very beautiful. The manner of making it is as follows: a trough is provided, of the size of the paper to be marbled; this is filled with water strongly saturated with gum arabic. Different colors are then sprinkled on the surface of this gum water, according to the taste of the operator. These colors spread of themselves on the flat surface of the liquor; the sheet of paper is then adroitly laid on the flat surface, when it absorbs all the colors spread there. It is taken off carefully, hung up to dry, and polished with a rubber.

The application of rotary motion has effected wonders in many of the arts; nor have the results been less astonishing in the paper-mill. Instead of dipping the sieves or frames into a cistern of turbid water, a circular web, or round towel of woven wire, revolves under the vessel, receives the deposit, conveys it away, and, by an adjustment of marvellous delicacy, transfers it, uninjured, although as frail as a wet cobweb, to a similar revolving towel of felt; thus an endless web of paper may be spun, as long as the machine continues to move, and the water charged with pulp is supplied.

We owe the introduction of paper into Europe to the Arabians or Moors. There is some uncertainty as to the precise era of its first appearance; and we are unable to trace the origin of the precious invention, or even to imagine by what steps men were led to it. We cannot conceive how any one could be tempted to pound wet rags in a mortar, to stir the paste into a large body of water, to receive the deposit upon a sieve, to press and to dry it. The labor of beating rags into pulp by the hand would be as hopeless as it would be tedious and severe. It is true that paper was originally made of cotton—a substance less obstinate than linen rags, which are now commonly used, although in this country both substances are often combined in the manufacture. At present the fresh rags are torn in pieces by a powerful mill: formerly it was the practice to suffer them to rot; to place them in large heaps in a warm and damp situation, and to allow them to heat and ferment, and to remain undisturbed until mushrooms began to grow upon them; so that, being partially decayed, it might be less difficult to triturate them. Nevertheless, the invention of paper is a mystery. The Chinese possess the art of making paper and of printing; but we know not how long they have had them, nor whether the Mohammedans learned the former from them. The illiterate inhabitants of some of the islands in the South Seas were able to compose a species of paper, which they used in fine weather for raiment, of the bark of trees. The basis of paper being the vegetable fibre, it has been made of various substances; of straw and corn stalks, as well as of rags.

During the present century, so remarkable for improvements in the arts, the paper manufacture has been signally promoted in England by the application of machinery to the conversion of pulp into paper. The result is almost miraculous. By the agency of a great deal of complicated machinery, so admirably contrived as to produce the intended effect with unerring precision and in the very best manner, a process, which under the old system of paper-making occupied about three weeks, is performed in as many minutes! A continuous stream of fluid pulp is, within this brief space of time, and the short distance of thirty feet, not only made into paper, but actually dried, polished, and every separate sheet cut round the edges, and rendered completely ready for use!

PAR. When two things of different denominations are equal to each other in value, they are then said to be, with respect to each other, equal, or *at par*. Stocks are said to be so much above or below par as they exceed or fall short of their original, sterling value: thus when stock, which costs $100 a share, sells at $98, it is said to be two per cent *below par*, or below $100 in value. It is sold *at par* when it brings $100 per share; if it bring $110, it is ten per cent *above par*, &c.

Gold and silver are at par with the coin of the country when the coin, melted down, will sell for the same that it passed current for in the form of money. The exchange between two countries is said to be at par when the moneys of each pass for their real value in bullion, without any fictitious depression or value, arising from the plenty or scarcity of one or the other.

PARANTHINE: a stone of a variety of colors, found in Norway.

PARCHMENT: the skin of sheep or goats prepared in such a manner as to render it proper for writing upon, covering books, &c. It is an important article in French commerce. The name is derived from Pergamus, the city where it is said to have been first manufactured.

PAREIRA-BRAVA: a root of a dark color, which comes from Brazil, and is used in medicine.

PARGASITE: a mineral of a green color and transparent, found near Abo, in Finland.

PARIAN MARBLE: the white marble from the island of Paros, used to this day for carving statues, &c.

PARTNERSHIP: the association of two or more individuals for carrying on some business or undertaking in common; each deriving a certain share of the profits, and bearing a corresponding share of the loss arising therefrom.

The advantages of partnerships are obvious. Many businesses could not be successfully carried on without a larger command of capital than usually belongs to an individual; and most of them require the combination of various species of talent. An individual may have capital sufficient to undertake a particular business, but he may not be thoroughly versed in any of its details, or he may be familiar with certain parts of it, and not with others; so that it might be for his advantage to assume one or more individuals as his partners, supposing them to be without capital, providing they possessed the skill and other qualifications required in prosecuting the business. Associations of this sort enable capital and talent to derive all the assistance that each is capable of lending to the other. And as the gains of each partner usually consist of a certain proportion of the total profits made by the company, each has the most powerful motive to exert himself for the benefit of the concern.

PASTE: a composition in imitation of diamonds, which is made in the following manner: Take of fine white sand six pounds; of red lead four pounds; of pearl-ashes purified three pounds; of nitre two pounds; of arsenic five ounces; and of manganese one scruple. Powder and fuse them. By means of the calces of metals, various colors may be communicated, so as to imitate rubies, sapphires, emeralds, and other precious stones.

PASTEL: a paste made of several colors, ground up in gum water, either together or separately, in order to make crayons.

PATENT: a privilege from government, granted by letters patent, conveying to the individual or individuals specified therein the sole right to make, use, or dispose of some new invention or discovery, for a certain specified time. A patent, unless it be for a frivolous or useless object, is always granted, when applied for; and an infringement of it may be prosecuted by the patentee.

PAWN: a pledge lodged for the security of the payment of a sum of money borrowed.

PAYEE: the person to whom a bill is made payable; and also the person entitled to receive payment of any sum of money.

PAYER: he who binds himself to the payment of bills, bond, or any sum of money, either verbally or by writing.

PEARL-ASHES: a kind of fixed alkaline salt. It is prepared by mixing the ashes of burnt wood with water, evaporating the clean lie, and calcining them for a considerable time in an oven moderately hot. The goodness of pearl-ashes is distinguished by their strong body, and a uniform white appearance; and their value decreases in proportion as they assume a blue cast. Pearl-ashes are chiefly prepared in North America, Hungary and Russia. They are much used in the manufacture of glass, as also for bleaching.

PEARLS: hard, white, shining bodies, usually roundish, found in various kinds of testaceous fishes. Pearls should be chosen round, of a bright, translucent, silvery whiteness, free from stains and roughness. Having these qualities, the largest are of course the most valuable. The larger ones have frequently the shape of a pear; and when these are otherwise perfect, they are in great demand for ear-rings. Ceylon pearls are most esteemed. When the pearls dwindle to the size of small shot, they are denominated *seed* pearls, and are of little value. They are mostly sent to China.

Much difference of opinion has existed among naturalists with respect to the production of pearls in oysters; but it seems now to be generally believed to be the result of disease. The pearl fisheries on the coast of Colombia were at one time of very great value; but for many years past the Colombian pearl fisheries have been of comparatively little importance. The best fishery ground is said to be in from six to eight fathoms water. The divers continue under water from a minute to a minute and a half, or at most two minutes. They have a sack or bag fastened to the neck, in which they bring up the oysters. The exertion is extremely violent; and the divers are unhealthy and short-lived.

PELLITORY: the root of a perennial plant, a native of the Levant, Barbary and the south of Europe. It is used in medicine as a stimulant.

PENKNIVES: small knives, too well known to need any particular description, used in making and mending pens. The best and most highly ornamented penknives are manufactured at London and Sheffield.

PENS: well-known instruments for writing, usually formed of the quills of the goose, swan, or some other bird. Sometimes, however, they are made of gold, silver and steel. The latter are occasionally contrived so as to contain a considerable quantity of ink, which they allow to flow out by slow degrees, so that the writer saves the time lost in dipping his pen in the inkstand.

PEPPER: an aromatic berry, of a hot, dry quality, chiefly used in seasoning articles of food. The plant on which it grows flourishes in the East Indies, on the coast of Malabar, in Java, Sumatra and Ceylon. It is a feeble creeping plant, and therefore, in cultivation, is placed near some large tree, which may yield it support. The grain, which grows in clusters, appears first green, then red, and is turned black by exposure to the sun. It is best for families to buy the pepper whole, as in grinding dealers have opportunity for adulteration. White pepper is a preparation from this.

PERRY: a fermented liquor made from pears, in the same manner as cider from apples. The pears best fitted for producing this liquor are those which are most harsh and tart.

PETROL: a mineral oil, or species of bitumen, supposed to issue from the clefts of rocks, and found floating on the waters of certain springs. It is obtained in hot countries, and is used externally in paralytic cases, &c.

PEWTER: a factitious metal, used in making plates, dishes, and other domestic utensils. It is a compound, the basis of which is tin. There are three sorts of pewter, distinguished by the names of plate, trifle and ley-pewter. The first was formerly much used for plates and dishes; of the second are made the pints, quarts, and other measures of beer; and of the ley-pewter, wine measures and large vessels.

PHOSPHORUS: a substance of a light amber color, and semi-transparent. When kept some time, it has a resemblance to white wax. When exposed to the atmosphere it emits a white smoke, and is luminous in the dark.

PIASTRES: the Spanish name for our dollars.

PIERS: the columns on which the arch of a bridge is raised. PIER is also used to signify a thick, strong and well-guarded wall or wharf, usually composed of durable stone, and stretching far into the sea, for the convenience of vessels lading and unlading their cargoes, whatever may be the state of the tide.

PILOT. The name of pilot or steersman is applied either to a particular officer, serving on board a ship during the course of the voyage, and having the charge of the helm and of the ship's route; or to a person taken on board at any particular place, for the purpose of conducting a ship through a river, road or channel, or from or into a port.

PIMENTO, ALLSPICE, or JAMAICA PEPPER: the fruit of a beautiful tree, which grows in great plenty on the hills on the north side of Jamaica. The berries when ripe are of a black or dark purple color. Exposed in the sun to dry, they become of a reddish brown. They are packed in bags or hogsheads for exportation. They have an aromatic, agreeable odor, resembling that of a mixture of cinnamon, cloves and nutmegs. Pimento is used in medicine, but its principal use is in the seasoning of soups and other dishes.

PINCHBECK: a name given to one of the many imitations of gold. By melting zinc in various proportions with copper or brass, some alloys result, the colors of which approach more or less to that of gold. This composition is frequently employed as a substitute for gold, in the formation of watches and similar articles.

PINNACE: a small vessel used at sea, with a square stern, having sails and oars, chiefly used as a scout for intelligence, and for landing of men. One of the boats belonging to a man-of-war, serving to carry the officers to and from the shore, is also called the pinnace.

PIPE-CLAY: a species of clay employed in the manufacture of various sorts of earthen ware, and in bleaching.

PISTACHIA NUTS: the fruit of a kind of turpentine tree. It grows naturally in Arabia, Persia, and Syria; also in Sicily, whence the nuts are annually brought to us. They are oblong and pointed. They have a pleasant, sweetish taste, resembling that of sweet almonds.

PISTAREEN: an old name for a Spanish coin, worth about twenty cents, still current in the West Indies and in this country.

PITCH: a resinous substance, composed of tar boiled down to dryness. The soot which arises in the burning of pitch is the substance commonly sold under the name of lamp-black. Vast quantities of pitch are manufactured in the United States.

PLAID: a striped or variegated stuff, sometimes made of silk, sometimes of wool, and sometimes of a mixture of these substances. Plaids are usually divided into broad and narrow striped plaids, and are manufactured principally in Scotland, where they are a very favorite dress, especially among the lower orders of the people.

PLANKS: thick strong boards, cut from various kinds of wood, especially pine and oak. Maine supplies vast quantities of pine planks.

PLASTER OF PARIS. The sulphate of lime, after being calcined, is termed burned gypsum, or plaster of Paris.

PLATINA: a metal which, in respect of scarcity, beauty, ductility and indestructibility, is hardly inferior to gold. It was unknown in Europe till about the middle of the last century, when it began to be imported in small quantities from Estremadura in Spain. Its color is that of the purest silver. Platina has been discovered in Russia and Siberia; and in the former place it has been coined into a beautiful piece of money, assuming a value hardly inferior to gold.

PLATTING: slips of cane, straw, &c. woven or plaited for making into hats, &c. The best straw platting is imported from Leghorn. Its superiority is said to depend on the peculiar quality of the straw employed in its manufacture, which is nowhere obtained in such perfection, for this purpose, as in the vicinity of Florence. In order to blanch the straw, it is suspended in the smoke of sulphur previously to being wrought; and the platting is afterwards subjected to the same process.

PLUMBAGO. See BLACK LEAD.

PLUMBERY: the art of casting and working lead, and using it in buildings. As this metal melts very readily, it is easy to cast it into figures of any kind, by running it into moulds of brass, clay, plaster, &c. But the chief article in plumbery is sheets and pipes of lead.

PLUMMET, PLUMB-RULE, or PLUMB-LINE: an instrument used by carpenters, masons, &c., in order to judge whether walls, &c. are upright planes, horizontal, or the like. It is thus called from a piece of lead, *plumbum*, fastened to the end of a cord, which usually constitutes this instrument. Sometimes the string descends along a wooden ruler, &c., raised perpendicularly on another, in which case it becomes a level.

PORCELAIN, or CHINA WARE: a very fine species of earthen ware. The first specimens of Porcelain were brought to Europe from China and Japan, where the manufacture has attained to great perfection, and has been carried on from a very remote era. It is of a very fine texture, white, and sometimes beautifully colored and gilt. The Chinese term for porcelain is *tse-ki;* but the Portuguese, by whom it was first brought in considerable quantities to Europe, bestowed on it the name of porcelain, from *porcella*, a cup. The beauty of the fabric soon brought it into great request, notwithstanding its high price, as an ornament to the houses and tables of the rich and the great. The emulation of European artists was consequently excited. Very little information was, however, obtained as to the mode of manufacturing porcelain till the early part of last century, when the process was developed in a letter from a French Jesuit in China, who had found means to make himself pretty well acquainted with the subject. The knowledge that had thus transpired, and the investigations of some eminent chemists, prepared the way for the establishment of the manufacture in Europe. It was first commenced at Dresden, which has been famous ever since for the beauty of its productions; but the finest and most magnificent specimens of European china have been produced at Sevres in France, in the factory carried on at the expense of the French government.

Instead of exclusively applying themselves to the manufacture of articles fitted only for the consumption of the rich, the artists of England have exerted themselves, in preference, to produce China ware suitable for the middle classes; and have succeeded in producing articles at once excellent in quality, elegant in form, and cheap. About the year 1763, Mr. Wedgwood, of England, invented a new kind of ware, which is manufactured under the name of queen's ware, or Wedgwood ware. Previously to his time the potteries of Staffordshire produced only inferior fabrics, flimsy as to their materials, and void of taste in their forms and ornaments; the best among them being only wretched imitations of the grotesque and unmeaning scenes and figures portrayed on the porcelain of China. But such have been the effects resulting from the exertions and example of Mr. Wedgwood, that the wares of that district are now not only brought into general use in Great Britain, to the exclusion of all foreign goods, which had been largely imported, but English pottery has since been sought for and celebrated throughout the civilized world, and adopted even in places where the art was previously practised.

There are two substances necessary for the formation of porcelain, called by the manufacturers *petuntse* and *kaolin*. The last is a white clay, and the former a flint. Both are reduced to a very fine powder, and washed repeatedly, with extreme care. These are then mixed thoroughly together, and being thrown into a large well-paved pit, the substance is well trodden, and afterwards kneaded together with the hands, with great and incessant labor; care being taken that not a single hair, nor a particle of sand, should be mingled with it; for any foreign substance would spoil the composition, and occasion cracks and warping when the ware comes to the fire.

This clay has then to pass

through many operations to give it shape. The first workman makes it into a sort of semicircular cup; this shape is given it by a wheel, in a moment; the next forms the base on which the cup stands; a third, by a mould, gives it, while still soft, its exact shape; a fourth polishes it with his chisel, and reduces its thickness greatly, to help its transparency.

This is but a general account, for it is said that seventy workmen handle a cup before it comes to us fit for use. Some pieces of china have large ornaments upon them; these are formed separately, and fastened on with the same kind of clay, greatly diluted. When the shape of the cup is formed, it is given to the painters, of whom there are many. He who paints the colored circle round the brim does nothing else; if one man traces the outlines for the flowers, it is the business of another to paint them. Supposing it to be a landscape, one paints mountains only, another trees; and the birds are not put in by the same hand which paints the human figure. It is next to be glazed or varnished, which is done with a sort of cream, made of powdered flint. When carried to the furnace for baking, each article is enclosed in a case, to keep it to its shape. The furnace is heated a day and a night before the ware is put in, and the whole is made red hot by the passage of the flame on every side. By this heat the flinty *petuntse* would be completely vitrified, or made transparent as glass, but the clayey *kaolin*, which is everywhere intermingled, being incapable of fusion, or melting, the whole together assumes the delicate appearance so much admired.

Porcelain earth is found in various parts of the United States, and will doubtless one day constitute the material of extensive manufactures. But the finer and more costly kinds of porcelain derive their value more from the labor bestowed upon their external decoration than from the quality of the material. There is a porcelain manufactory in Philadelphia, which has produced some very fine specimens of the art.

PORK: the flesh of the hog. When salted and pickled, pork constitutes a considerable branch of the Western export trade. Immense quantities are carried down the Mississippi to New Orleans, and there sold for ship stores or for exportation.

PORT: the name of a red wine, so called from Oporto or 'Porto, a city and sea-port of Portugal, whence great quantities of the article are annually exported. A large proportion of brandy is always mixed with the wine shipped from Oporto for England. Genuine unmixed port wine is very rarely met with in this country.

PORT-HOLES, in a ship, are the holes in the side of a vessel, through which are put the muzzles of great guns. These are shut up in storms, to prevent the water from driving through them.

POSTAGE, and POST-OFFICE. Postage is the duty or charge imposed on letters or parcels conveyed by the post; the Post-Office being the establishment by which such letters or parcels are conveyed. Regular posts or couriers were instituted at a very early period, for the safe, regular and speedy transmission of public intelligence. Herodotus informs us, that in Persia, men and horses, in the service of the monarch, were kept at certain stations along the public roads; and that the despatches, being given to the first courier, were by him carried to the second, and so on, with an expedition that neither snow, nor rain, nor heat, nor darkness, could check. A similar institution, under the name of *cursus publicus*, was established at Rome by Augustus, and was extended and improved by his successors. Horses and carriages were kept in readiness at the different stations along the public roads, not only for the transmission of despatches, but also for the conveyance of official personages, or others who had obtained an order from authority allowing them to travel post. By this means government was speedily apprized of whatever took place in the remotest corners of the empire; and instructions or functionaries could be sent to, or recalled from, the most distant provinces, with a celerity that would even now appear considerable.

Posts appear to have been established for the first time in modern Europe in 1477, by Louis XI. They were originally intended to serve merely, as the ancient posts, for the conveyance of public despatches, and of persons travelling by authority of government. Subsequently, however, private individuals were allowed to avail themselves of this institution; and governments, by imposing higher duties or rates of postage on letters and parcels sent through the post-office than are sufficient to defray the expense of the establishment, have rendered it productive of a considerable revenue.

In the English colonies in North America, a post-office was projected as early as 1692. The first office in the colonies was established in 1710, by an act of parliament "for establishing a general post-office for all her majesty's dominions." The postmaster-general was to be "at liberty to keep one chief letter office in New York; and other chief offices at some convenient place or places in each of her majesty's provinces or colonies in America."

After the breaking out of the revolution, this department came of course under the control of the Congress of the confederacy. The constitution of the United States, adopted in 1789, gave the exclusive power of establishing post-offices and post-roads to Congress, thus preventing the difficulties which would have resulted from leaving this department to the several states.

There is at the seat of government of the United States at Washington a general post-office, under the direction of the postmaster-general, who is appointed by the president, and appoints two assistants, and such clerks as may be necessary for the performance of the business of his office. He establishes post-offices, and appoints postmasters at all such places as appear to him expedient on post-roads established by law. He instructs the postmasters, provides for the carriage of the mail, and directs the routes. "No stage or other vehicle which regularly performs trips on a post-road, or a road parallel to it, shall convey letters, nor any packet-boat or other vessel which regularly plies on a water declared to be a post-road, except it relates to some part of the cargo, under the penalty of fifty dollars."

Robbery of the mail is punishable with imprisonment from five to ten years, and a second offence with death. Dead letters, or such as have remained in the post-office for a long time, without being called for, must be sent to the postmaster-general, at Washington, who opens them, and, if they contain anything valuable, endeavors to return them to the owners.

The privilege of *franking* is an immunity from postage, which is enjoyed by certain officers of government and by members of Congress. A letter is said to be *franked* when the name of the individual possessed of such privilege writes his name upon the envelope.

Great numbers of letters pass between America and Europe in the lines of steam and other packets, particularly those which run between New York and Liverpool and Havre, and are supported by the enterprise of private individuals. The number of letters delivered by these packets into the New York post-office, sometimes amounts (when several arrive together in consequence of a continuance of contrary winds on the coast) to many thousands in one day.

POST-ENTRY. When goods are weighed or measured, and the merchant has got an account thereof at the custom-house, and finds his entry already made too small, he must make a *post* or additional *entry* for the surplusage, in the same manner as the first was done.

POSTING, in book-keeping, is the mode of transferring articles of different descriptions from the inferior to the superior books of accounts, and there arranging them under their proper heads.

POST PAPER: a name given to the fine paper used in letter-writing. It has obtained this appellation from letters being usually forwarded by the *post*.

POTASH: an alkaline salt, chiefly procured by *lixiviation*, from the ashes of burnt wood, and other vegetable substances. When pure, it is in form of a whitish powder, of a highly acrid taste, and quickly destroys animal bodies. Potash is of great use in the arts. It is employed in bleaching, making alum, scouring wool, in dyeing and calico-printing, for making glass and soap; though soda is usually employed for the two latter purposes. It is also of considerable importance in chemistry and medicine.

POTTERY: the manufacture of earthen-ware, or the art of making earthen vessels. The art is a very ancient one. David says of the wicked, "they shall be dashed in pieces as a potter's vessel;" and Jeremiah broke one, as an example of divine vengeance. The Chinese annals go very far back, but the art of making pottery was known before their beginning; for their first accounts speak of it as a thing of long standing.

POUNCE: gum-sanderach, pounded and sifted very fine, to rub on paper, in order to prevent the ink from spreading on the surface of the paper, and to render the writing clear and distinct.

PREMIUM denotes that sum of money, or percentage, which is given to an insurance office for insuring the safety of a ship or other property.

PRICE-CURRENT: a list or enumeration of various articles of merchandise, with their prices, and sometimes the duties payable thereon, and the drawbacks allowed upon particular sorts of goods. Lists of this description are published periodically, generally once a week, in our great commercial cities.

PRIMAGE: a certain allowance paid by the shipper or consignee of goods, to the mariners and master of a vessel, for loading the same.

PRIVATEERS: ships of war fitted out by private individuals, to annoy and plunder the public enemy. But before commencing their operations, it is indispensable that they obtain letters of *marque and reprisal* from the government to which they are subject, authorizing them to commit hostilities, and that they conform strictly to the rules laid down for the regulation of their conduct. All private individuals attacking others at sea, unless empowered by letters of marque, are to be considered pirates; and may be treated as such, either by those they attack, or by their own government.

PROA, in navigation, is a name given to a vessel used in the South Seas, because, with a brisk trade wind, it sails near twenty miles an hour.

PRODUCE, in mercantile affairs, is a term applied to the *indigenous* merchantable commodities of any territory. Thus we call sugar, coffee, cotton, and the like, "West India *produce*;" hemp, flax, &c. "Russia *produce*," &c.

PROMISSORY NOTE: a note of hand, purporting the payment of a certain sum, at a stated period.

Form of a Promissory Note.

New York, 6th July, 1837.

Three months after date, I promise to pay to John Johnson, Esq., or order, the sum of three hundred and fifty dollars, with interest, for value received.

PRUNES: dried plums, of which there are many varieties. The best are imported from France, in the south of which this fruit is very abundant.

PRUSSIAN BLUE: a beautiful deep blue powder, accidentally discovered at Berlin in 1710. It is of considerable importance in the arts, being much used by painters. It cannot be used in the dyeing of cottons, or any sort of stuff that is to be washed with soap, as the alkali contained in the soap readily dissolves and separates the coloring matter.

PUMICE-STONE: a light, spongy, vitreous stone, found usually in the neighborhood of volcanoes. It is used for polishing metals and marble, and smoothing wood and pasteboard. The lighter pumice-stone floats on water. The island of Lipari, in the Mediterranean, is chiefly formed of pumice-stone, and may be said to be the magazine whence all Europe is supplied with this useful article.

PURSER: an officer on board frigates and other public ships, who is entrusted with the purchase and care of the provisions, beer, water, casks, &c. of the ship, and all the stores thereto belonging.

PUTTY: a kind of paste, compounded of whiting and linseed oil, worked together to the consistence of a thick dough. It is used by glaziers for fastening in the squares of glass in sash windows, and by painters for stopping up the crevices and clefts in timber and wainscots, &c.

PYROPHORUS. By this name is denoted an artificial product, which takes fire or becomes ignited on exposure to the air. It is prepared from alum by calcination, with the addition of various inflammable substances.

PYROTECHNICS: the art of making fireworks.

Q.

QUADRANT: a mathematical instrument of great use in astronomy and navigation.

QUARANTINE: a regulation, by which all communication with individuals, ships, or goods, arriving from places infected with the plague, or other contagious disease, or supposed to be peculiarly liable to such infection, is interdicted for a certain definite period. The term is derived from the Italian *quaranta*, forty; it being generally supposed that if no infectious disease break out within forty days, or six weeks, no danger need be apprehended from the free admission of the individuals under quarantine. During this period, too, all the goods, clothes, &c. that might be supposed capable of retaining the infection, are subjected to a process of purification. This last operation, which is a most important part of the quarantine system, is performed either on board ship, or in establishments denominated *lazarettos*.

The lazarettos at Leghorn, Genoa, and Marseilles are the most complete of any in Europe. The facilities they afford to navigation are very great; for as ships from suspected places may discharge their cargoes in the lazaretto, they are not detained longer than they would be were there no quarantine regulations. The goods deposited in the lazaretto, being inspected by the proper officers and purified, are then admitted into the market.

The period of quarantine varies, as respects ships coming from the same place, according to the nature of their *bills of health*. These are documents, or certificates, signed by the consul or other competent authority in the place which the ship has left, describing its state of health at the time of her clearing out. A *clean* bill imports that, at the time of her sailing, no infectious disorder was known to exist. A *suspected*, or, as it is more commonly called, a *touched* bill, imports that rumors were afloat of an infectious disorder, but that it had not actually appeared. A *foul* bill, or the absence of clean bills, imports that the place was infected when the vessel sailed. The duration of the quarantine is regulated by the nature of these instruments.

QUARTO: a book, in which every sheet, being twice doubled, makes four leaves or eight pages.

QUASSIA: a beautiful tall tree, growing in North and South America, of which there are several varieties. The wood is of a pale yellow color, and its taste is intensely bitter.

QUERCITRON BARK: the bark of a species of oak, growing in many parts of North America. It is used in dyeing yellow colors.

QUILLS: the hard and strong feathers of the wings of geese, ostriches, swans, turkeys, crows, &c. They are classified according to the order in which they are fixed in the wing; the second and third quills being the best. Crow quills are chiefly used for drawing. The goodness of quills is judged partly by the size of the barrels, but more by the weight. Particular attention should be taken in purchasing quills, that they be not *left-handed*, that is, out of the left wing. A method of hardening quills is by setting water and alum over the fire, and while it is boiling putting in a handful of quills, the barrels only, for a minute, and then laying them by.

R.

RAGS: shreds or fragments of linen, woollen, or cotton cloth. Though commonly held in little estimation, rags are of great importance in the arts, being used for various purposes, but especially in the manufacture of paper, most of which is entirely prepared from them. Linen rags are imported into this country in considerable quantities from Italy, Sicily, and other parts of Europe. There is considerable variety in the appearance of rags from different ports; but, in general, those from the north of Europe are darker and stronger than those from the Mediterranean ports. Most of the rags collected in the Tuscan states, to the extent of 10,000 or 12,000 bags a year, go to America.

RAGWORT: a perennial plant, growing by road-sides, and flowering from July to August. It imparts a fine green color to wool.

RAILROAD: a species of road, having tracks or ways formed of iron, stone, or other solid material, on which the wheels of carriages passing along it run. The object in constructing such roads is, by diminishing the friction, to make a less amount of power adequate either to impel a carriage with a greater velocity, or to urge forward a greater load.

The friction on a perfectly level railroad, properly constructed, is estimated to amount to from one tenth to one seventh only of the friction on an ordinary level road; so that, supposing the same force to be applied in both cases, it would move a weight from ten to seven times as great on the former as on the latter. But if there be a very moderate ascent, such as one foot in fifty, which in an ordinary road would hardly be perceived, a great increase of power on the railroad is required to overcome the resistance that is thus occasioned. The reason is that the ordinary load on a *level* railroad is about *seven times as great* as on a common turnpike road; so that when the force of gravity is brought into operation by an ascending plane, its opposing power, being *proportioned to the load*, is seven times as great as on a common road. Hence the vast importance of having railroads either level, or as nearly so as possible.

It is also of great importance that railroads should be straight, or, at least, free from any abrupt curves. Carriages being kept on the road by *flanges* on the wheels, it is obvious that, where the curves are quick, the friction on the sides of the rails, and consequent retardation, must be very great. Railroads are either made with double tracks, one for going and one for returning, or they are made with *sidings*, where the carriages may pass each other.

The application of locomotive engines as a moving power on railroads must be regarded as of the highest importance. These engines were first brought into use in England in 1825, and now they are in general use both there and in this country. Carriages full of passengers, attached to these engines, may be safely impelled along a perfectly level railroad at a speed of twenty or thirty miles an hour.

RAISINS: the dried fruit of the vine. They are produced from various species of vines; deriving their names partly from the places where they grow, as Smyrnas, Valencias, &c., and partly from the species of grape of which they are made, as muscatels, blooms, sultanas, &c. Their quality appears, however, to depend more on the method of their cure than on anything else. The finest raisins are cured in two ways: either by cutting the stalk of the bunches half through, when the grapes are nearly ripe, and leaving them suspended on the vine till the watery part be evaporated, and the sun dries and candies them; or by gathering the grapes when they are fully ripe, and dipping them in a lie made of the ashes of the burnt tendrils; after which they are exposed to the sun to dry. Those cured in the first way are most esteemed, and are denominated raisins of the sun. The inferior sorts are very often dried in ovens.

Raisins are imported in casks,

barrels, boxes and jars. The finest come in jars and quarter boxes, weighing about twenty-five pounds. Some of the inferior sort are brought to us in mats. Malaga raisins are in the highest estimation. The muscatels from Malaga fetch nearly twice the price of any other description of raisins. The Smyrna black is the cheapest variety. Exclusive of raisins, a considerable quantity of undried grapes is annually imported from Spain and Portugal in jars, packed in saw-dust.

RAPE: a plant of the turnip kind, which is cultivated principally for its seeds, which yield a useful oil.

RATAFIA: a spirituous liquor prepared from kernels, &c. of several kinds of fruit, particularly cherries and apricots, with an addition of spice and brandy. Ratafia is chiefly prepared by the French, with whom it makes an article of commerce.

RATTANS, or CANES: the long slender shoots of a prickly bush, one of the most useful plants of the Malay peninsula and the Eastern islands. They are exported to Bengal, to Europe, America, and above all to China, where they are consumed in immense quantities. For cane work they should be chosen long, of a bright pale yellow color, well glazed, and of a small size, not brittle or apt to break. They are purchased by the bundle, which ought to contain a hundred rattans, having their ends bent together, and tied in the middle. In China, they are sold by the *picul*, which contains from nine to twelve bundles.

RECEIPT: an acknowledgment in writing of having received a sum of money, or other valuable consideration.

REDDLE: an ore of iron in the state of red oxide, commonly used as a pigment. Red lead pencils, as they are vulgarly called, are made of this substance, which is likewise much used in marking sheep, and other coarse purposes.

RESIN: a viscid juice oozing from several vegetable productions, as the pine, the fir, &c. That of fir is known by the name of rosin.

RETAIL is a dealing in small quantities, in opposition to dealing by wholesale. Dealing by retail is what principally distinguishes the tradesman from the merchant, who imports and exports goods, and sells them by wholesale.

RHAPONTIC: a medicinal root

resembling rhubarb. It was called *rha-ponticum*, or root of Pontus, because chiefly produced in Pontus, in Asia.

RHUBARB: the root of a plant, a native of China and Tartary. Three varieties of rhubarb are known in the shops, namely, Russian, Turkey, and East Indian or Chinese rhubarb. The two first resemble each other in every respect; they are in fact the same article, being both derived from Tartary. The portion destined for the Petersburgh market, being selected and sorted at Kiachta, acquires the name of Russian rhubarb; while the portion that is sent from Tartary to Smyrna, and other places in Turkey, is called Turkey rhubarb. This root is much used in medicine.

RICE: a very valuable species of grain. It is largely cultivated in India, China, and most Eastern countries; in the West Indies, in many parts of the United States, and in some of the southern countries of Europe. In China the rice crop is of great importance; it forms the principal part of the food of the inhabitants; and, as much of the land lies flat and low, and the country is plentifully intersected by canals, it has an excellent opportunity for irrigation. From the time the seed is sown till it is almost ripe, it requires the fields to be covered with one entire sheet of water.

Half the people of Asia live upon rice. It is almost the only food in many parts of Africa, especially among the Moors, in the northern provinces. Great quantities are also carried to Europe.

In 1697, rice was carried to South Carolina, where the soil and temperature have suited it so well that it has become a great addition to the products of that state. The grain grown there is larger than that which comes from the East Indies; which, added to its swelling and softening more in the cooking, makes it in higher repute.

The lands which produce rice are more numerous and more fertile in the southern parts of North America than in any other part of the world. Along the whole coast from the bay of Delaware to the gulf of Mexico, there is almost one continued tract of rice-fields. The rice-fields or marshes of Virginia alone produce more rice than is sufficient to supply all the people of America. There is also in the inland parts of North America a description of wild rice, which has been found of considerable use to the new settlers, as affording them a supply till their lands could be made productive. It grows in places where the water is about two feet deep. The Indians gather it thus: about the time that it begins to ripen from its milky state, they go into the midst of it in their canoes. They tie together large bunches of it, just below the ears or panicles; in about a month it becomes quite ripe and hard. Then, near the end of September, they return, and running their canoes under these several bunches, they beat the grain out, and catch it as it falls. They then dry it in smoke, and rub or tread off the husk.

ROPE: hemp, hair, &c. spun into a thick yarn, of which several strings are twisted together by means of a wheel. When made very small it is called a córd, and when very thick a cable. All the different kinds of this manufacture, from a fishing-line or whip-cord to the cable of a first rate ship of war, go by the general name of cordage.

ROSEWOOD is produced in Brazil, the Canary islands and other places. It is in the highest esteem as a fancy wood.

ROSIN: a substance obtained from different species of fir.

RUBY: a precious stone much valued. The color of the *Oriental Ruby*, when perfect, is a cochineal red, presenting a richness of hue the most exquisite and unrivalled. Rubies are found in Pegu and the island of Ceylon.

RUDDER: in navigation, a piece of timber turning on hinges in the stern of the ship, and which, opposing sometimes one side of the water, and sometimes another, turns or directs the vessel this way or that.

RUM: a well-known spirituous liquor, obtained, by means of fermentation and distillation, from molasses, the refuse of the cane-juice, and portions of the cane, after the sugar has been extracted. Taken internally, it is, like all alcoholic preparations, deleterious to the system; but it is sometimes useful in external applications.

RYE: a useful species of grain, produced from a plant which is a native of the island of Candia.

S.

SABLE: an animal of the weasel tribe, found in the northern parts of Siberia and America, and hunted for the sake of its fur. Its color is generally of a deep glossy brown, and sometimes of a fine glossy black, which is most esteemed. The finer sorts of the fur of sables are very scarce and dear.

SACK, or CANARY: a sort of sweet wine, brought to us from the Canary islands. This wine is chiefly produced in the island properly called Canary.

SADDLES: seats adapted to the horse's back, for the convenience of the rider. The hog-skins which, when tanned, are used for the seat of the saddle, are mostly imported from Russia.

SAGAPENUM: a concrete gum resin, the produce of an unknown Persian plant. It is imported from Alexandria, Smyrna, &c. It is used only in medicine.

SAGO: a species of meal, the produce of a palm tree, indigenous to and abundant in the East Indies, where it forms a large portion of the farinaceous food of the inhabitants. The fruit of the tree is worth nothing as food; the only eatable part being the pith, which fills the inner part of it, and which constitutes the sago. The natives are obliged to destroy the tree to get at this substance, which is very important to them as a substitute for bread, besides being an article of exportation. The tree grows to be thirty or forty feet high, and its diameter is often two feet. This large tree is cut down and sawed into pieces, each about five or six feet long; and these are split, that they may more easily strip off the bark and get at the mealy pith. This substance they scrape out carefully, and soak and wash it in water, to get it quite clear from any fibrous or woody matter that may adhere to it. They then pound it in mortars, and strain it through bags and cloths, as the meal will run through with the water, and leave the refuse behind. The meal thus becomes a kind of paste, which may be eaten directly, or preserved for several years.

Sago comes to us in small grains, somewhat resembling coriander seed. To bring it to this state, it is moistened, and then rubbed through a sieve, into an iron pan, under which is a fire, which partly hardens each drop as it falls; thus the separate grains are half baked; in which state it will keep a long while, if well defended from the air; otherwise it is liable to become sour. Three or four hundred weight of sago are often obtained from a single tree. There is a species of sago brought from the West Indies, but it is inferior to that brought from the East.

SALT: a mineral body, readily soluble in water, not inflammable, and having a sharp or pungent taste. Immense masses of it are found in this and many other countries, which require only to be dug out and reduced to powder. In this state it is called rock-salt. The salt commonly known by the name of *bay salt* is obtained from the water of the sea by evaporation. It had this name from being first made in the bay of St. Ubes, in Portugal; and great quantities of it are still exported from that place. In France large shallow pits are dug by the sea-shore, into which the water flows at high tide, and by a sluice it is prevented from returning when the tide falls. The heat of the sun evaporates this water; the salt crystallizes on the edges and bottoms of the pits; and this is carefully gathered up for use.

Much salt is prepared in vats at Cape Cod and other places along the sea-coast of the United States. Salt springs abound in the western part of the state of New York; and at Salina there are large establishments for the manufacture of salt. The salt water is obtained by sinking wells and boring; and the salt is beautifully white and fine-grained. Besides its vast utility in seasoning food, and preserving meat, both for domestic consumption and during the longest voyages, and in furnishing muriatic acid and soda, salt forms a glaze for coarse pottery, by being thrown into the oven where it is baked; it improves the whiteness and clearness of glass; it gives hardness to soap; in melting metals it preserves their surface from calcination, by defending them from the air, and is employed with advantage in some assays; it is used as a mordant, and for improving certain colors, and enters more or less into many other processes of the arts. Many contradictory statements have been made as to the use of salt as a manure. Probably it may be advantageous in some instances, and not in others.

SALTPETRE: a salt very well

known in commerce, and of very great importance. It may be regarded both as a natural and an artificial production; being found on the surface of the soil in many parts of the world, and obtained by an artificial process. Saltpetre forms the principal ingredient in the manufacture of gunpowder; and is also used in various arts. That which is of the best quality and well refined is in long transparent crystals; its taste is sharp, bitterish, and cooling; it flames much when thrown upon burning coals, and is very brittle. The consumption of saltpetre during periods of war is very great. Its price is consequently liable to extreme fluctuation.

SALVAGE: an allowance or compensation made to those by whose exertions ships or goods have been saved from the dangers of the seas, fire, pirates, or enemies.

SAMPLE: a small quantity of an article exhibited at a public or private sale, as a specimen of the commodity. Sugars, wool, spirits, wine, coffee, and nearly every species of merchandise, is sold by sample. If an article is not, on an average, equal at least to the sample whereby it is sold, the buyer may recall his contract, and return the article upon the hands of the seller.

SANDAL-WOOD: the wood of a tree having somewhat of the appearance of a large myrtle. The wood is extensively employed as a perfume in the funeral ceremonies of the Hindoos. The deeper the color, and the nearer the root, the higher is the perfume. Malabar produces sandal-wood of the finest quality.

SANDARACH: a resinous substance, commonly met with in loose granules a little larger than a pea, of a whitish yellow color, brittle, inflammable, of a resinous smell, and acrid, aromatic taste. It exudes, it is said, in warm climates, from cracks and incisions in the common juniper bush. It is used as a varnish, dissolved in spirits of wine.

SANDERS: a hard odoriferous wood, the produce of a tree growing in the East Indies. There are three sorts, the yellow, white, and red.

SAPAN-WOOD is obtained from a species of the same tree that yields the Brazil-wood.

SAPPHIRE: a precious stone, in very high estimation. Colors blue and red; also gray, white, green, and yellow. After the diamond it is the hardest substance in nature.

SARCENET: a kind of fine, thin-woven, plain silk.

SARDINES: a species of fish of the herring tribe. They are met with both in the ocean and the Mediterranean, in the latter especially, in great abundance.

SARDONYX: a precious stone, consisting of a mixture of the chalcedony and cornelian. It is sometimes in strata, but at other times blended together. From its hardness and tenacity, it shows the art of the engraver to the highest perfection.

SARSAPARILLA: the root of a plant growing in South America and the West Indies. It is imported in bales. The roots run to some distance under the surface of the ground. The gatherers have only to loosen the soil a little, and to draw out the long fibres with a wooden hook. In this manner they proceed till the whole root is got out. It is then cleared of the mud, dried, and made into bundles.

SATIN: a soft, closely woven silk, with a glossy surface, usually employed for women's wear.

SAW-MILLS. In early periods, the trunks of trees were split with wedges into as many and as thin pieces as possible, and if it was necessary to have them still thinner, they were hewn on both sides to the proper size. This simple and wasteful manner of making boards has been still continued in some places to the present time. Peter the Great of Russia endeavored to put a stop to it, by forbidding hewn deals to be transported on the river Neva.

The mechanism of a sawing-mill may be reduced to three principal things: the first, that the saw is drawn up and down as long as is necessary, by a motion communicated by water to the wheel: the second, that the piece of timber to be cut into boards is advanced by a uniform motion to receive the strokes of the saw; for here the wood is to meet the saw, and not the saw to follow the wood; therefore the motion of the wood and that of the saw ought immediately to depend the one on the other: the third, that when the saw has cut through the whole length of the piece, the whole machine stops of itself, and remains immovable; for fear, lest, having no obstacle to surmount, the force of the water should turn the wheel with too great rapidity, and break some part of the machine. Saw-mills are very numerous in Maine, and great improvements have been made in the machinery.

SAW-WORT: a plant employed by dyers to impart a yellow color.

SCAMMONY: a gum resin, the produce of a species of *convolvulus* or creeping plant, which grows abundantly in Syria. When an incision is made into the roots, they yield a milky juice, which, being kept, grows hard, and is the scammony of the shops. It is imported from Aleppo in what are called drums, and from Smyrna in cakes like wax, packed in chests. The best is brought from Aleppo. It is used only in medicine.

SCHOONER: a small vessel with two masts, usually a fast sailer, and much used in the coasting trade.

SCRIVELLOS, or SCRIVELLI, are the small elephants' teeth, or pieces of them, or of the large ones, which are not sold singly, but in parcels.

SCULPTURES: figures cut in stone, metal, or other solid substance, representing or describing some real or imaginary object. The art of the sculptor, or statuary, was carried to the highest pitch of excellence in ancient Greece. Fortunately, several of the works of the Grecian sculptors have been preserved, and serve at once to stimulate and direct the genius of modern artists.

SEALING-WAX: the wax used for sealing letters, legal instruments, &c. It is a composition of gum-lac, melted and incorporated with resin, and afterwards colored with some pigment, as vermilion, verditer, ivory black, &c.

SEAWORTHY: a term applied to a ship, indicating that she is in every respect fit for her voyage.

SENNA: the leaf of a shrubby plant, cultivated in Persia, Syria and Arabia, whence the leaves are brought, dried, and picked from the stalks, to Alexandria, in Egypt, and thence imported into Europe. Senna is much used in medicine.

SERGE: a woollen stuff manufactured in a loom. There are various kinds, denominated either from their different qualities, or from the different places where they are wrought. The London serges are the most valued.

SHAGREEN: a kind of grained

leather, used for various purposes in the arts. It is extensively manufactured at Astrachan, in Russia.

SHALLOON: a slight woollen stuff, being a species of serge. It derives its appellation from the town of Chalons, in France, where the first specimens of the article were produced.

SHAMMY, or CHAMOIS LEATHER: a kind of leather dressed in oil, or tanned, and much esteemed for its softness, pliancy, and capability of bearing soap without hurt. The real shammy is prepared of the skin of the chamois goat. But leather prepared of the skins of the common goat, kid, and sheep, is frequently substituted in its stead.

SHARKS' FINS form a regular article of trade to China, and are collected for this purpose everywhere from the eastern shore of Africa to New Guinea. In the Cairo price-currents they are as regularly quoted as tea or opium.

SHAWLS: articles of fine wool, silk, or wool and silk, manufactured after the fashion of a large handkerchief, used in female dress. The finest shawls are imported from the East Indies, where they are highly esteemed, and cost from fifty to three hundred guineas. Cachemire, or Kosmir, is the grand seat of the manufacture of those beautiful shawls which bear the name of this province. At Seringar, in Cachemire, there are above two thousand manufactories, in which the different processes of weaving and dyeing the shawls are constantly practised. The merchants of the country annually journey from mountain to mountain, for the purpose of buying up wools for the use of the manufacturers. Shawls of a very excellent quality are made in Russia, and also in Great Britain.

SHELLAC. See LAC.

SHERRY: a very strong wine, produced in the vicinity of Xeres, in Spain, whence its name. There is something in its flavor which partakes of the taste of leather. This is owing to the custom of bringing the wines down the country in large leather vessels, or, as the Spaniards call them, *boots*, whence we derive the term *butts*, which we bestow upon the casks in which we receive the wine. This flavor goes off with keeping; wherefore it is that no wine of this kind can be palatable till it be of a considerable age. The sherry wines are shipped principally at

Cadiz. Perhaps no wine is so much adulterated as sherry.

SHIP: a general name for all large vessels, particularly those equipped with three masts and a bowsprit; the masts being composed of a lower mast, top-mast, and top-gallant-mast; each of these being provided with yards, sails, &c.

SHROUDS, in a ship, are the great ropes which come down both sides of the masts, and are fastened below to the chains on the ship's side, and aloft to the top of the mast; being *parcelled* and *served*, in order to prevent the mast's galling them.

SILK: a very soft, fine, bright thread, the work of an insect called the bombyx, or the silk-worm. As the silk-worm is a native of China, the culture of the silk, in ancient times, was entirely confined to that country. Till the reign of Justinian, the silk-worm was unknown beyond the territories of China; but silk was introduced into Persia long before that period. After the conquest of the Persian empire by Alexander the Great, this valuable commodity was brought into Greece, and thence conveyed to Rome. The first of the Roman writers extant by whom silk is mentioned are Virgil and Horace; but it is probable that neither of them knew from what country it was obtained, nor how it was produced. Among the Romans, silk was deemed a dress too expensive and delicate for men, and was wholly appropriated to women of eminent rank and opulence. For several centuries the Persians supplied the Roman empire with silks from China. Caravans traversed the whole latitude of Asia in two hundred and forty-three days, from the Chinese Ocean to the sea-coast of Syria, carrying this commodity. Sometimes it was conveyed to the ports of Guzerat and Malabar, and thence transported by sea to the Persian Gulf.

In the reign of the emperor Justinian, however, we are informed, a number of the eggs of the silk-worm were conveyed by artifice to the capital: from which beginning vast numbers were soon after reared in different parts of Greece. Sicily afterwards undertook to breed silk-worms, and with similar success; and was imitated by several towns of Italy. In all these places, extensive manufactures were established, and carried on with silk of domestic production. The demand for silk from the East diminished of course, and a considerable change took place in the nature of the commercial intercourse between India and Europe.

The silk-worm is a species of caterpillar, which, like all others of the same class, undergoes a variety of changes. It is produced from a yellowish colored egg, about the size of a pin's head, which has been laid by a grayish colored moth, vulgarly confounded with the butterfly. These eggs in the temperature of this climate, even in summer, may be prevented from hatching, if they be kept in a cool place; and when the food on which the worm is fed is in perfection, the eggs need only be exposed to the sun for a day or two, when they will be hatched with great facility.

When the animal is first protruded from the shell, it is a small black worm, which is active in search of food. At this stage of its growth, the silk-worm requires to be fed with the youngest and most tender white mulberry leaves. On these it will feed very freely, for about eight days, during which time it increases in size to about a quarter of an inch in length. It is then attacked with its first sickness, which consists in a sort of lethargic sleep, of about three days' continuance, during which time it refuses to eat, and changes its skin, preserving the same bulk. This sleep being over, it begins to eat again during five days, at which term it is grown to the size of full half an inch in length. After this follows a second, then a third, then a fourth sickness, in every respect like the former; and after every sickness it feeds again for five days.

At the time it is attacked by its fourth sickness, it is arrived at its full growth; and on recovering it feeds once more during five days with a most voracious appetite; after which it disdains its food, becomes transparent, a little of a yellowish cast, and leaves its silky traces on the leaves where it passes. These signs denote that it is ready to begin its cocoon. Thus it appears that the whole duration of the life of the worm, in this state of its existence, in our climate, is usually forty days; twenty-eight of which days it takes food, and remains in its sick or torpid state about twelve; but it is to be observed that warm weather shortens and cold weather prolongs the periods of sickness. When the worm is come to full perfection, it searches about for a convenient place for forming its cocoon, and mounts upon any branches or twigs that are put in its way for that purpose. After about two days spent in this manner, it settles in its place, and forms the cocoon, by winding the silk, which it draws from its bowels, round itself, into an oblong roundish ball. During this operation it gradually loses the appearance of a worm; its length is much diminished, and its breadth augmented. By the time the web is finished, it is found to be transformed into an oblong roundish ball, covered with a smooth shelly skin, and appears to be perfectly dead. In this state it remains for several days, entirely motionless, in the heart of the cocoon; after which it bursts like an egg hatching, and from that comes forth a heavy, dull-looking moth, with wings; but these wings it never uses for flying. This creature forces its way through the silk covering which the worm had woven, goes immediately in quest of its mate, after which the female lays her eggs; and both male and female, without tasting food in this stage of their existence, die in a very short time.

Though the silk-worm be a native of China, there is no doubt but it might be propagated in most parts of the temperate zone. The mulberry tree, upon the leaves of which it lives, is a hardy vegetable, bearing, without injury, even the winters of Siberia. It is reared in abundance in New England. Nature has furnished us with every thing necessary for the silk manufacture.

The cocoons, from which silk is to be immediately wound, must be submitted to the heat of an oven, in order to kill the *chrysalis*, or *aurelia*, which would otherwise eat its way through the cocoon, and render it useless. Good cocoons are strong, small, and firm; have a fine grain, both ends round, and they are free from spots.

The cocoons which are kept for breeding are called royal cocoons. The largest and the best cocoons ought to be preserved for breed. About twelve or fifteen days after they begin to spin, the cocoons for breed may be laid on sheets of white paper; as about this time the moth opens for itself a passage through the end of the cocoon.

When the female has laid her eggs, which on an average amount to two hundred and fifty, they are spread upon paper, and hung up to dry in some cool place.

The next operation is the winding of the silk, before which the cocoons must be prepared as follows:

1. Strip them of the waste silk that surrounds them, and which served to fasten them to the twigs. This burr is proper to stuff quilts, or for other such uses; you may likewise spin it to make stockings, but they will be very coarse and ordinary.

2. You must sort your cocoons, separating them into different classes, in order to wind them apart. These classes are the good white cocoons; the good cocoons of all other colors; the dupions; the cocalons, among which are included the weak cocoons; the good choquette, or spotted cocoon; and, lastly, the bad choquette. The good cocoons, as well white as yellow, are the easiest to wind; those which require the greatest care and pains are the cocalons, which are bigger, but of a weaker contexture. You must wind these in cooler water than the others; and if you take care to give them a good windster, you will have as fair silk from them as from the rest.

The cocoons produce a thread of very unequal length; you may meet with some that yield more than one thousand two hundred and twenty ells, whilst others will scarcely afford two hundred ells. In general, you may calculate the production of a cocoon at from five to six hundred ells in length. The silk imported into this country is chiefly the produce of Italy, Turkey, and the East Indies.

The kingdom of Naples is computed to yield more than 800,000 pounds of silk annually; of which half is supposed to be worked at home, and the other half exported raw. Silk is an important branch of the commerce of the island of Cyprus. The breeding of silkworms here is not subject to the inconveniences arising from the variations of the atmosphere, as it is in other parts. The island produces on an average 25,000 bags of silk annually. It is not uncommon in Cyprus to receive commissions from Constantinople, Aleppo, and Egypt for silk, which is afterwards sent to Europe.

Raw Silk is simply the silk produced by the operation of winding off, at the same time, several of the balls or cocoons on a common reel, thereby forming one smooth, even thread. When the skein is dry it is taken from the reel, and made up into hanks; but before it is fit for weaving, and in order to enable it to undergo the process of dyeing, without furring up or separating the fibres, it is converted into one of three forms, namely, *singles*, *tram*, or *organzine*.

Singles is formed of *one* of the reeled threads, being twisted, in order to give it strength and firmness.

Tram is formed of two or more threads twisted together.

Thrown Silk is formed of two, three, or more singles, according to the substance required, being twisted together in a contrary direction to that in which the singles of which it is composed are twisted. This process is termed organzining, and the silk so twisted *organzine*.

The manufacture of silk is daily increasing in this country, and many companies have been formed which have profitably pursued it. As yet, most of the silk manufactured is imported raw from abroad; but attention is being more and more directed to the raising of silk-worms, and the time may not be far distant when the necessity of foreign importations of this article will be suspended.

SILVER: a metal of a fine white color, without either taste or smell. The most productive silver mines are in America, particularly in Mexico and Peru.

SKINS. The term is applied in commercial language to the skins of those animals, as calves, deer, goats, lambs, &c., which, when prepared, are used in the lighter works of book-binding, the manufacture of gloves, parchment, &c.; while the term *hides* is applied to the skins of the ox, horse, &c., which, when tanned, are used in the manufacture of shoes, harness, and other heavy and strong articles. Lamb and kid skins are principally used in the glove manufacture; one hundred and twenty skins being supposed to produce, upon an average, eighteen dozen pairs of gloves.

SLOOP: a sort of small ship or vessel, usually with only one mast.

SMACK: a small vessel, usually

carrying a single mast, and principally employed in fishing.

SMALT, or SMALTZ: an oxide of cobalt, melted with siliceous earth and potash. It is a sort of glass, of a beautiful deep blue color, and being ground very fine, is known by the name of powder blue. The color of smaltz is not affected by fire; and it is consequently in great demand in the painting of earthen ware. It is also employed in the coloring of paper, and for other purposes in the arts. Smaltz is principally manufactured in Germany and Norway.

SMUGGLING: the act of illegally importing or exporting goods, either clandestinely, or in an open and hostile manner, without payment of the accustomed duties thereon. People sometimes manage to smuggle goods of considerable value; and they usually land them in the night time on some desolate and solitary coast. The endeavors to prevent smuggling occasions great numbers of officers, sailors, cutters, &c. to be kept on the constant look-out. This is sometimes called the *Preventive Service.* They have fast sailing vessels, known by the name of *revenue cutters*, in which they go to pursue the vessels which they suspect of being loaded with contraband goods; and sometimes they have a battle on land with the smugglers.

SNAKEROOT: a medicinal root, growing principally in Virginia and the Southern states.

SNUFF: a powder chiefly made of tobacco, the use of which is well known.

SOAP. The soap met with in commerce is generally divided into two sorts, *hard* and *soft;* the former is made of soda and tallow or oil, and the latter of potash and similar oily matters. Soap made of tallow and soda has a whitish color, and is, therefore, sometimes denominated *white* soap; but it is usual for soap-makers, in order to lower the price of the article, to mix a considerable portion of rosin with the tallow: this mixture forms the common *yellow* soap of this country. Soap made of tallow, &c., and potash, does not assume a solid form; its consistence is never greater than that of hog's lard. The properties of soft soap as a detergent do not differ materially from those of hard soap, but it is not nearly so convenient for use. The oil usually employed for making soft soap in this country is whale oil. A little tallow is sometimes added, which, by a peculiar management, is dispersed through the soap in fine white spots. The soap made in countries which produce olive oil, as the south of France, Italy and Spain, is preferable to the soap of this country, which is usually manufactured from grease, tallow, &c.

SOAPSTONE, or STEATITE, as it is called in science, is a substance so soft that it may be easily cut by a knife, and in most cases scratched by the nail. It is a compound of silica, magnesia, alumina, oxide of iron, and water. It occurs in masses or veins, or small beds. The soapstone of Springfield in Massachusetts, and Francistown in New Hampshire, appears to be composed chiefly of talc.

SODA: an alkaline salt, principally obtained from the ashes of marine plants. For this purpose considerable quantities of sea-weed are collected on the coasts of Scotland and Spain particularly, and burnt for the manufacture of what is called *barilla* and *kelp*, both which are soda, mixed with a variety of extraneous substances. Soda may also be obtained from sea-salt, which consists principally of muriate of soda. Soda is used by glass-makers, soap-makers, bakers, color-makers, and is also employed in chemistry and medicine.

SOY: a species of sauce, prepared in China and Japan, and eaten with fish and other articles.

SPERMACETI: a product obtained from the brain of a species of whale inhabiting the Southern Ocean. The brain being dug out from the cavity of the head, the oil is separated from it by dripping. The residue is crude spermaceti, of which an ordinary sized whale will yield twelve barrels. After being brought to this country it is purified. It then concretes into a white, crystallized, brittle, semi-transparent, unctuous substance, nearly inodorous and insipid. On being cut into small pieces, it assumes a flaky aspect. It is used in the manufacture of candles, in medicine, &c.

SPIRIT OF WINE is nothing more than brandy distilled a second time; and this after another rectification is called *spirit of wine rectified.* It is used for several purposes, especially in the hard-ware manufactory.

SPIRITS. All inflammable

liquors, raised by distillation, are included under this general denomination; such as brandy, rum, gin, &c., which will be found under their proper heads.

SPONGE: a soft, light, very porous and compressible substance, readily imbibing water, and as readily giving it out again. It is found adhering to rocks, particularly in the Mediterranean Sea, about the islands of the Archipelago. It was formerly supposed to be a vegetable production, but is now classed among the zoophytes; and analyzed, it yields the same principles as animal substances in general. The inhabitants in several of the Greek islands have been trained from their infancy to dive for sponges. They adhere firmly to the bottom, and are not detached without a good deal of trouble. The extraordinary clearness of the waters facilitates the operations of the divers. Smyrna is the great market for sponge. It is also fished in the Red Sea.

SPRUCE BEER: a cheap and wholesome liquor, which is thus made: Take of water sixteen gallons, and boil the half of it. Put the water thus boiled, while in full heat, to the cold part, which should be previously put into a barrel or other vessel; then add a few table spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation is abated. Then close it up, or bottle it off, and it will be fit for being drunk in a few days afterwards.

SQUILL, or, as it is sometimes denominated, the sea-onion, is a plant with a large bulbous root, which is the only part that is used. It grows spontaneously on sandy shores in Spain and the Levant; whence we are annually supplied with the roots. Squill is one of the most useful of medicines.

STARCH: a substance obtained from vegetables. It has a fine white color, scarcely any smell, and very little taste. When kept dry it continues for a long time uninjured, though exposed to the air. It is insoluble in cold water, but combines with boiling water, forming with it a kind of jelly. It exists chiefly in the white and brittle parts of vegetables, and may be extracted by pounding these parts and agitating them in cold water; when the fibrous parts will first subside; and these being removed, a fine white powder, diffused through the water, will gradually subside, which is the starch. Potato starch goes a good deal farther than wheat starch—a less quantity of it sufficing to form a paste of equal thickness with water. It has a very perceptible crystallized appearance, and is apparently heavier than common starch.

STEAMBOAT: a boat, which may be propelled by means of steam. The principle is, by a steam engine of considerable power, to work a large wheel, or rather two wheels, one on each side, which, by paddles, push against the water, and thus shove the vessel forward. For the successful application of this great discovery, the world is indebted to Robert Fulton, an American. His account of the construction of his first steamboat is interesting: it is taken from Judge Story's Discourse before the Boston Mechanics' Institution.

"When," said Fulton, "I was building my first steamboat at New York, the project was viewed by the public either with indifference, or with contempt as a visionary scheme. My friends indeed were civil, but they were shy. They listened with patience to my explanations, but with a settled cast of incredulity on their countenances. I felt the full force of the lamentation of the poet,

'Truths would you teach to save a sinking land,
All shun, none aid you, and few understand.'

"As I had occasion to pass daily to and from the building yard, while my boat was in progress, I have often loitered unknown near the idle group of strangers, gathering in little circles, and heard various inquiries as to the object of this new vehicle. The language was uniformly that of scorn, or sneer, or ridicule. The loud laugh often rose at my expense; the dry jest; the wise calculation of losses and expenditures; the dull but endless repetition of the 'Fulton Folly.'

"Never did a single encouraging remark, a bright hope, or a warm wish cross my path. Silence itself was but politeness, veiling its doubts, or hiding its reproaches. At length the day arrived when the experiment was to be put in operation. To me it was a most trying and interesting occasion. I invited many friends to go on board to witness the first successful trip. Many of them did me the favor to attend as a matter of personal respect; but it was manifest that they did it with reluctance, fearing to be the partners of my mortification, and not of my triumph. I was well aware that, in my case, there were many reasons to doubt of my own success. The machinery was new and poorly made; many parts of it were constructed by mechanics unaccustomed to such work; and unexpected difficulties might reasonably be presumed to present themselves from other causes.

"The moment arrived in which the word was to be given for the vessel to move. My friends were in groups on the deck. There was anxiety mixed with fear amongst them. They were silent, and sad, and weary. I read in their looks nothing but disaster, and almost repented of my efforts. The signal was given, and the boat moved on a short distance, and then stopped and became immovable. To the silence of the preceding moment now succeeded the murmurs of discontent and agitation, and whispers and shrugs. I could hear distinctly repeated, 'I told you it would be so—it is a foolish scheme. I wish we were well out of it.' I elevated myself upon a platform, and addressed the assembly. I stated that I knew not what was the matter; but if they would be quiet, and indulge me for a half hour, I would either go on or abandon the voyage for that time.

"This short respite was conceded without objection. I went below, examined the machinery, and discovered that the cause was a slight mal-adjustment of some of the work. In a short period it was obviated. The boat was again put in motion. She continued to move on. All were still incredulous. None seemed willing to trust the evidence of their own senses. We left the fair city of New York; we passed through the romantic and ever varying scenery of the Highlands; we descried the clustering houses of Albany; we reached its shores; and then, even then, when all seemed achieved, I was the victim of disappointment. Imagination superseded the influence of fact. It was then doubted if it could be done again; or if done, it was doubted if it could be made of any great value."

Steamboats may now be seen on almost every navigable river in the United States. How much must this invention have accelerated the progress of emigration and social improvement in the Western states! The steamboats on the Mississippi are distinguished for the elegance of their accommodations. Europe has extensively adopted this mode of conveyance; and steamboat conveyance between New York and Great Britain has been recently established, which promises complete success.

The author of "A Year in Spain" gives the following statement, from which it would appear that Fulton was not the first who successfully applied steam to the purpose of navigation:

"In the year 1543, a certain sea-officer, called Blasco de Gavay, offered to exhibit before the emperor Charles V. a machine by means of which a vessel should be made to move without the assistance of either sails or oars. Though the proposal appeared ridiculous, the man was so much in earnest that the emperor appointed a commission to witness and report upon the experiment. The experiment was made the 17th of June, 1543, on board a vessel called the Trinidad, of two hundred barrels' burden, which had lately arrived with wheat from Colibre. The vessel was seen at a given moment to move forward, and turn about at pleasure, without sail or oar, or human agency, and without any visible mechanism, except a huge boiler of hot water, and a complicated combination of wheels and paddles.

"The assembled multitude were filled with astonishment and admiration. The harbor of Barcelona resounded with plaudits; and the commissioners, who shared in the general enthusiasm, all made favorable reports to the emperor, except only the treasurer Ravago. This man, from some unknown cause, was prejudiced against the inventor and his machine.

"He took great pains to undervalue it, stating, among other things, that it could be of little use, since it only propelled the vessel two leagues in three hours; that it was very expensive and complicated, and that there was great danger of the boiler's bursting frequently. The experiment over, Gavay collected his machinery, and having deposited the wooden part in the royal arsenal, carried the rest to his own house.

"Notwithstanding the invidious representations of Ravago, Gavay was applauded for his invention, and taken into favor by the emperor, who promoted him one grade, gave him two hundred thousand *maravedises*, and ordered the jealous treasurer to pay all the expenses of the experiment. But Charles was then taken up with some military expedition, and the occasion of conferring an inestimable benefit on mankind was neglected for the business of bloodshed and devastation; while the honor which Barcelona might have received from perfecting this noble discovery was reserved for a city which had not yet started in the career of existence.

"The fact that a vessel was propelled by steam as early as the sixteenth century thus rendered certain, the question next occurs, whether it in any way detracts from the honor due to Fulton, not for having made the first successful application of steam to purposes of navigation, (for he was even anticipated by Fitch in the United States,) but for having brought it into use over the whole civilized world. By no means. This experiment at Barcelona, owing to the absence of journals and newspapers, those modern vehicles and wings of intelligence, was unknown to the world generally, at the time of making it, as it ever was to Fulton. And, besides, who can tell but that in like manner many inventions, which constitute at once the pride and profit of the present age, may have existed centuries ago in countries of forgotten civilization?"

STEAM ENGINE. The steam engine is one of the noblest monuments of human ingenuity. It was originally invented by the Marquis of Worcester, in the reign of Charles II. What inventions do we not owe to a knowledge of this simple power of steam! In the language of Webster, "it is on the rivers, and the boatman may repose on his oars; it is in highways, and begins to exert itself along the courses of land-conveyance; it is at the bottom of mines, a thousand feet below the earth's surface; it is in the mill, and in the workshops of the trades. It rows, it pumps, it excavates, it carries, it draws, it lifts, it hammers, it spins, it weaves, it prints."

About the year 1762, Mr. Watt, a Scottish gentleman, began to turn his attention to making improvements in the steam engine, and since then it has been brought to a great degree of perfection.

The locomotive, or travelling engines, used on railroads, are all what are called high-pressure engines. The speed of these engines may be increased to forty miles an hour. They are employed on most of our railroads, and trains of cars being attached, passengers or goods are conveyed with great expedition from place to place. It is only within the last five years that these engines have been introduced in this country.

STEEL is iron refined in the fire with certain ingredients, that render it white, and impart to it a harder and finer grain than that of the original metal. Iron is converted into steel either by fusion or cementation. The former method is employed for making steel immediately from the ore, or from the crude, cast metal; in the latter, bars of iron are placed in furnaces, with a stratum of charcoal between every two, till the pile is raised to a sufficient height; the whole is then closely covered to prevent the access of the air, when a strong fire is kindled, and uniformly continued during the whole process. The surface of the metal, manufactured in either way, generally exhibits numerous vesicles, whence it is called blistered steel; but these may be removed by repeated ignition between red-hot coals, and by forging.

The finest metal of this description is the Damascus steel, which is imported from Syria; but the process pursued in the Turkish manufactories is not accurately known in Europe. The celebrated Brescian steel is obtained by roasting the iron ore in strata, with layers of wood between; and when these are sufficiently smelted, the metal is taken out of the furnace, broken in pieces, picked, and washed in troughs of pure water. It is next conveyed to an oblong square cavity, termed the fluxing bed, which is strewed with a mixture of finely sifted ashes and sand, that are carefully compressed; a stratum of charcoal is then laid on, the smelted metal is gradually added, and at the end of three or four days the conversion is completed.

Steel is usually divided into three

sorts, according to the method in which it is prepared; as *natural steel*, *steel of cementation*, and *cast-steel*. The latter is the most valuable of all, as its texture is the most compact, and it admits of the finest polish. It is used for razors, surgeons' instruments, and similar purposes.

STEERAGE: on board a ship, that part of a ship next below the quarter-deck, before the bulk-head of the great cabin, where the steersman stands.

STEREOTYPE PRINTING. The Chinese and Japanese first practised the art of printing by means of wooden blocks. The mode of stereotype printing is, first to set up a page, for instance, in the common way with type, and when it is rendered perfectly correct a cast is taken from it with plaster of Paris, and into this cast the metal for the stereotype plate is poured.

STERLING: a term frequent in British commerce. A pound, shilling, or penny sterling signifies as much as a pound, shilling, or penny of lawful money of Great Britain, as settled by authority.

STOCKS. The property of a company or corporation, or the money invested by them for certain purposes, either in a bank or an insurance office, in building a steamboat or speculating in lands, is usually known by the name of stock. Thus we have "Boston and Worcester railroad stock," "United States Bank stock," &c. See PAR, PERCENTAGE, &c.

STORAX: the most fragrant of the solid resins, and indeed of all the known vegetable substances. It is obtained from a tree of the same name, said to grow most plentifully in Syria, Cilicia, and Pamphylia. America likewise produces storax trees.

STUCCO: properly a composition of white marble pulverized, and mixed with plaster or lime, the whole being sifted, and wrought up together with water. It is much used in Europe as a coating for the exterior of houses, to give them the appearance of stone.

SUGAR: a sweet granulated substance, too well known to require any particular description. It is everywhere in extensive use, and in this country ranks rather among the indispensable necessaries of life than among luxuries. In point of commercial importance it is second to few articles. It is chiefly prepared from the expressed juice of the sugar-cane; but it is also procured from an immense variety of other plants, as maple, beet-root, birch, parsnep, &c.

The sugar met with in commerce is usually of four sorts,—brown or Muscovado sugar, clayed sugar, refined or loaf sugar, and sugar candy. The difference between one sort of sugar and another depends on the different modes in which it is prepared.

Brown or Muscovado Sugar.—The plants or canes being crushed in a mill, the juice, having passed through a strainer, is collected in the clarifier, where it is first exposed to the action of a gentle fire, after being "tempered," (mixed with alkali,) for the purpose of facilitating the separation of the liquor from its impurities. It is then conveyed into the large evaporating copper boiler, and successively into two others, each of smaller size; the superintendent of the boiling freeing it, during the process, from the scum which rises to the surface. The syrup then reaches the last copper vessel, where it is boiled till sufficiently concentrated to be capable of granulating in the cooler, whence it is transferred with the least possible delay. Here it soon ceases to be a liquid; and, when fully crystallized, is put into hogsheads, placed on their ends in the curing-house, with several apertures in their bottoms, through which the molasses drains into a cistern below. In this state they remain till properly cured, when the casks are filled up, and prepared for shipment.

Clayed sugar is prepared by taking the juice, as in the case of Muscovado sugar, when boiled to a proper consistency, and pouring it into conical pots with the apex downwards. These pots have a hole at the lower extremity, through which the molasses or syrup is allowed to drain. After this drain has continued some time, a stratum of moistened clay is spread over the surface of the pots; the moisture of which, percolating through the mass, is found to contribute powerfully to its purification.

Refined sugar is prepared from Muscovado or clayed sugar, by redissolving the sugar in water, and, after boiling it with some purifying substances, pouring it, as before, into conical pots, which are again covered with moistened clay. A repetition of this process produces *double-refined* sugar.

The sugar-cane must be considered as a native of China, since it has been pretty accurately shown that its cultivation was prosecuted in that empire for two thousand years before sugar was even known in Europe, and for a very long period before other eastern nations became acquainted with its use. A knowledge of the origin of cane-sugar was correctly revealed in the middle of the thirteenth century, by the celebrated traveller Marco Polo; though it was partially known much earlier. The plant was soon conveyed to Arabia, Nubia, Egypt, and Ethiopia, where it became extensively cultivated. Early in the fifteenth century the sugar-cane first appeared in Europe. Sicily took the lead in its cultivation; thence it passed to Spain, Madeira and the Canary islands; and shortly after the discovery of the new world by Columbus, this plant was conveyed to Hayti and Brazil, from which latter country it gradually spread through the islands of the West Indies.

The sugar-cane varies exceedingly in its growth, depending upon the nature of the soil. In new and moist land it sometimes attains the height of twenty feet. It is always propagated from cuttings. The hoeing of a cane-field is a most laborious operation, when performed, as it must be, under the rays of a tropical sun. When the canes are fully ripe, they are cut close to the ground, and being then divided into convenient lengths, are tied up in bundles, and conveyed to the mill. Upon an average every five gallons of cane-juice will yield six pounds of crystallized sugar, and will be obtained from about one hundred and ten well-grown canes.

Dutrone calls sugar the most perfect alimentary substance in nature, and the testimony of many physicians establishes the fact. Dr. Rush, of Philadelphia, says, in common with all who have analyzed it, that "sugar affords the greatest quantity of nutritive matter of any substance in nature." Used alone, it has fattened horses and cattle in St. Domingo for a period of several months, during the time when the exportation of sugar and the importation of grain were suspended from the want of ships.

The Cochin Chinese consume a great quantity of sugar; they eat it generally with their rice, which is the ordinary breakfast of people of all ages and stations. There is little else to be obtained in all the inns of the country but rice and sugar; it is the common nourishment of travellers. The Cochin Chinese not only preserve in sugar all their fruits, but even the greater part of their leguminous vegetables, gourds, cucumbers, radishes, artichokes, the grain of the lotus, and the thick, fleshy leaves of the aloe. They fancy nothing is so nourishing as sugar. This opinion of its fattening properties has occasioned a whimsical law. The body-guard of the king, selected for the purposes of pomp and show, are allowed a sum of money with which they must buy sugar and sugar-cane, and they are compelled by law to eat a certain quantity daily. This is to preserve the *embonpoint* and good looks of those soldiers who are honored by approaching so near the person of the king; and they certainly do honor to their master by their handsome appearance. Domestic animals, horses, buffaloes, elephants, are all fattened with sugar-cane in Cochin China. Sugar has been found to be an antidote to the poison of verdigris, if taken speedily and in abundance; and, unlike many other organic substances, its nutritious qualities are not liable to change, from the operations of time or season.

The West Indies, Brazil, Surinam, the East Indies, including the islands of Java, Mauritius and Bourbon, are the principal sources whence the supplies required for the European and American markets are derived. The U. States consume from 70,000 to 80,000 tons; and of these from 30,000 to 40,000 tons are produced in Louisiana. Cuba exports vast quantities of sugar; and the article constitutes one of the greatest staples of commerce in the known world.

Beet-Root Sugar.—The manufacture of sugar from beet-root is carried on to a very considerable extent in France, where the annual produce of the sugar from this source may be estimated at about 8,000 tons. It is supposed by some, that at no distant period the manufacture of sugar from beet-root will be so much improved, that it may be able to compete in cheapness with that from the cane.

Maple-Sugar.—A species of maple, which grows plentifully in the U. States and in Canada, yields a considerable quantity of sugar. In some districts it furnishes the inhabitants with most of the sugar they make use of. The juice is obtained by perforating the tree in the spring to the depth of about two inches, and setting a vessel for its reception. From two to three gallons may be about the daily average produce of a single tree; but some trees have yielded more than twenty gallons in a day. The process of boiling the juice does not differ materially from what is followed with the cane-juice in the West Indies. It is necessary that it should be boiled as soon after it is drawn from the tree as possible.

SULPHUR, or BRIMSTONE: a crystallized, hard, brittle substance, commonly of a greenish yellow color, without any smell, and of a weak though perceptible taste. It burns with a pale blue flame, and emits a great quantity of pungent, suffocating vapors. Sulphur is of great importance in the arts. It is used extensively in the manufacture of gunpowder, and in the formation of sulphuric acid or oil of vitriol.

SUMACH: a shrub that grows naturally in Syria, Palestine, Spain and Portugal. It is useful in dyeing and calico-printing.

SUPERCARGO: a person employed by merchants to go a voyage, and oversee their cargo, and dispose of it to the best advantage.

SWIVEL: a sort of small cannon, used on board merchant-ships as a weapon of defence.

T.

TACAMAHAC: a resin, obtained from a plant which grows in different parts of America. It is of a light brown color, and when pure it has an aromatic smell between that of lavender and musk.

TAFFETY: a fine smooth silken stuff, remarkable for its gloss or lustre.

TALC: a species of fossil. It is soft, smooth, and may be split into fine plates or leaves, of a greenish, whitish, or silver-like lustre.

TALLOW: a sort of animal fat melted down and clarified, being used in making soap and candles, and in the dressing of leather.

TAMARINDS: the fruit of a tree which grows in the East and West Indies, in Arabia and Egypt. In the W. Indies, the pods or fruit, being gathered when ripe, and freed from the shelly fragments, are placed in layers in a cask, and boiling syrup poured over them, till the cask be filled; the syrup pervades every part quite down to the bottom, and when cool the cask is headed for sale.

TANNING: the art of converting the raw skins of animals into leather. The first part of the process of tanning is to steep the skins in water, to wash from them all the blood and dirt; then the horns, ears and tail are cut off. They are next to be freed from the hair. This is done by laying them in water with lime for a few days; they are then taken out and drained; then put into fresh lime-pits again; and so on, twice a week, for several weeks. The skins are then laid across a beam of wood, when the hair is scraped off with a proper knife.

The skins are then laid in other pits carefully one over the other, with a layer of tan (which is nothing but bark coarsely ground) between the several skins. Here they lie for months, only being changed into fresh pits, with stronger degrees of tan, till it is incorporated through the whole substance of the skin; it then becomes leather. Softer leathers are not imbued with tan; but the thickening effect is produced by repeatedly soaking them in water in which salt and alum have been dissolved.

TAPIOCA: a species of starch or powder, prepared from the roots of an American plant. The roots are peeled, and subjected to pressure in a kind of bag made of rushes. The juice which is forced out is a deadly poison, and is employed by the Indians to poison their arrows; but it deposits gradually a white starch, which, when properly washed, is innocent. It is dried in smoke, and afterwards passed through a kind of sieve. Of this substance the cassavi bread is made, and it is also often used in the composition of puddings.

TAR: a thick, black, unctuous substance, chiefly obtained from the pine, and other turpentine trees, by burning them in a close smothering heat. Tar is prepared in great quantities in different parts of the United States.

TARE: an abatement or deduction made from the weight of a parcel of goods, on account of the weight of the chest, cask, bag, &c. in which they are contained.

TARIFF: a table, alphabetically arranged, specifying the various duties, drawbacks, bounties, &c.,

charged and allowed on the importation and exportation of articles of foreign and domestic produce.

TEA: an article of such general use in our country, that few can be ignorant of its color and taste. But many years have not passed since it was unknown in Europe and America, and some people were so unacquainted with its use that they at first boiled the tea-leaves as they would boil greens. Even now, when so much of this article is consumed, many persons are ignorant of its culture and manner of preparation.

The tree, or rather shrub, from the leaves of which the beverage called tea is made, is a native of China and Japan, in which countries alone it is cultivated for use. It is an evergreen, somewhat resembling the myrtle in appearance, and grows to a height varying between three and six feet. It is capable of enduring great variations of climate, being cultivated alike in the neighborhood of Canton, where the heat is at times almost insupportable to the natives, and around the walls of Pekin, where the winter is, not unfrequently, very severe.

The best sorts, however, are the production of a more temperate climate; the finest teas are said to be grown in the province of Nankin, occupying nearly the middle station between the two extremes of heat and cold. The greatest portion of what is brought to the Canton market, and sold to the European and American merchants, is the produce of the hilly but populous and industrious province of Fokien, situated on the sea-coast to the north-east of Canton. It appears to thrive best in valleys, or on the banks of rivers or rivulets.

The first European writer who mentions tea is Giovanni Botero, an eminent Italian author, who published a treatise, about the year 1590, on the causes of the magnificence and greatness of cities. He does not mention tea by name, but he describes it in such a manner that it is impossible to mistake it. "The Chinese," he says, "have an herb, out of which they press a delicate juice, which serves them for drink, instead of wine: it also preserves their health, and frees them from all those evils which the immoderate use of wine produces among us."

The tea-plant is propagated from

the seed, and the manner of sowing it is as follows:

Holes are drilled in the ground at equal distances, and in regular rows; into each hole the planter throws as many as six, or even a dozen seeds, not above a fifth part of the seed planted being expected to grow. While coming to maturity, they are carefully watered; and though, when once out of the ground, they would continue to vegetate without further care, the more industrious cultivators annually manure the ground, and clear the crop from weeds.

Among other stories relative to the tea-tree, it has been said that some of the finest specimens grow on the precipitous declivities of rocky mountains, where it is too difficult or too dangerous for human beings to gather them; and that the Chinese, in order to procure them, pelt a race of monkeys which inhabit these inapproachable recesses with stones, provoking them to return the compliment with a shower of tea-branches.

The leaves of the tea-plant are not fit for gathering until the third year, at which period they are in their prime, and most plentiful. When about seven years old, the shrub has generally grown to about the height of a man, and its leaves become few and coarse; it is then generally cut down to the stem, which, in the succeeding summer, produces an exuberant crop of fresh shoots and leaves: this operation, however, is sometimes deferred till the plant is ten years old.

The process of gathering the tea is one of great nicety and importance. Each leaf is plucked separately from the stalk; the hands of the gatherer are kept carefully clean, and, in collecting some of the fine sorts, he hardly ventures to breathe on the plant. At a place called Udsi, in the island of Japan, is a mountain, the climate of which is supposed to be particularly congenial to the growth of tea, and the whole crop which grows upon it is reserved for the sole use and disposal of the emperor. A wide and deep ditch round the base of the mountain prevents all access, except to the appointed guardians of its treasures. The shrubs are carefully cleansed of dust, and protected from any inclemency of the weather. The laborers who collect the leaves are obliged, for some weeks previous, to abstain from all gross food, lest their breath or perspiration might injure the flavor; they wear fine gloves while at work, and during that period bathe two or three times a day.

Notwithstanding the tediousness of such an operation, a laborer can frequently collect from four to ten, or even fifteen pounds a day. Three or four of these gatherings take place during the season; namely: towards the end of February, or beginning of March; in April or May; towards the middle of June; and in August. From the first gathering, which consists of the very young and tender leaves only, the most valuable teas are manufactured, namely, the green tea called Gunpowder, and the black tea called Pekoe.

The produce of this first gathering is also denominated in China Imperial tea, probably because where the shrub is not cultivated with a view to supplying the demands of the Canton market, it is reserved, either in obedience to the law, or on account of its superior value, for the consumption of the emperor and his court. From the second and third crops are manufactured the green teas called in our shops Hyson and Imperial, and the black teas denominated the Souchong and Congou. The light and inferior leaves separated from the Hyson by winnowing form a tea called the Hyson-skin, much in demand by the Americans, who are also the largest general purchasers of green teas. On the other hand, some of the choicest and tenderest leaves of the second gathering are frequently mixed with those of the first. From the fourth crop is manufactured the coarsest species of black tea, called Bohea; and this crop is mixed with an inferior tea, grown in a district called Woping, near Canton; together with such tea as remains unsold in the market of the last season.

Owing to the minute division of land in China, there can be few, if any, large tea-planters; the plantations are small, and the business of them carried on by the owner and his own family, who carry the produce of each picking immediately to market, where it is disposed of to a class of persons, whose business it is to collect and dry the leaves, ready for the Canton tea-merchants.

TEAK WOOD: the produce of a tree growing in the kingdoms of Ava and Pegu, employed in the construction of vessels.

TEASEL: a plant of considerable importance to clothiers, who employ the crooked awns of the heads for raising the nap on woollen cloths.

TELEGRAPH: a contrivance resembling the system of signals or beacons in all its essentials, but having the advantage of conveying *words* with rapidity to any visible distance, and from station to station, by thirty distinct signs. The telegraph was an invention of the French in 1794. By them it was applied to announce the approach of British cruisers along the coasts. By the British government, likewise, it was applied to similar purposes the next year. In 1818, the original telegraph was superseded by an improvement upon its principle, by means of a simple instrument called a *Semaphore*, a single pillar supplied with numerous arms. A system of marine telegraphs by means of flags is now in successful operation among United States ships, and has been found of great utility.

TIDE-WAITERS: inferior officers belonging to the custom-house, whose employment is to watch or attend upon ships until the customs are paid.

TIFFANY: a sort of transparent gauze, stiffened with gum and pressed.

TILES: a sort of thin brick dried in a kiln, and used in covering and paving different kinds of buildings. The best brick earth only should be made into tiles.

TILLER, *of a ship*, a strong piece of wood fastened in the head of the rudder for a handle, and in small ships and boats called the helm.

TIMBER: the term used to denote every large tree squared, or capable of being squared, and fit for being employed in house or ship building. Maine exports vast quantities of timber to the West Indies, and to different parts of the United States. Canada exports much to England.

TIN: a metal, which has a fine white color like silver. It is much used as a covering to other metals. When rolled into thin sheets it is called *tin foil*, and is applied, with the addition of mercury, to cover the surface of glass, thus forming looking-glasses, &c. The ores of this metal are found in England and other parts of Europe, and in China. The most extensive and probably richest tin district in the world exists in the Malay countries.

TOBACCO: the dried leaves of a plant indigenous to America, but which succeeds very well, and is extensively cultivated, in most parts of the old world. The fresh leaves possess very little odor or taste; but when dried their odor is strong and narcotic, and their taste bitter. When well cured, they are of a yellowish green color. When distilled they yield an essential oil, on which their virtue depends, and which is said to be a virulent poison. The leaves are used in various ways; being chewed, smoked, and ground and manufactured into snuff.

The taste for tobacco, though apparently administering only to a frivolous gratification, has given birth to a most extensive commerce, and been a powerful spur to industry. Being a native of America, its introduction into Europe dates only from the early part of the sixteenth century. Tobacco was the term used in the Haytian language to designate the pipe, or instrument made use of by the natives in smoking the herb; and the term, having been transferred by the Spaniards from the pipe to the herb itself, has been almost universally adopted by other nations. Tobacco is believed to have been first introduced into England by the settlers who returned, in 1586, from the colony which it had been attempted to found in Virginia, under the auspices of Sir Walter Raleigh, in the preceding year. Raleigh, and other young men of fashion, having adopted the practice of smoking, it spread amongst the English; as it had previously spread amongst the Spanish, Portuguese, French, and other continental nations. But it made its greatest progress in England after the foundation of the colony at Jamestown, in Virginia, in 1607. The soil of the colony being found particularly well fitted for the culture of tobacco, considerable quantities were raised and sent home. King James I. attempted, by repeated proclamations and prohibitions, to restrain the use of tobacco; and he published a pamphlet entitled a "Counterblast to Tobacco," in which he stigmatizes smoking as "a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and, in the black stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless."

The efforts of King James were of very little avail in restraining the use of tobacco; and the settlers in Virginia continued to experience a more rapidly increasing and better demand for that article than for any other product of the colony.

The habit of tobacco-smoking is more perfectly artificial than almost any other in which man indulges; and there are few which are more repulsive to the natural taste. It is generally disagreeable to those who do not practise it; those who do, have, in the first instance, acquired it with effort and difficulty; and many of those who try are unable to acquire it at all. Now, the wonder is, how it happens that a habit of this description should exceed all others in the extent of its diffusion. In the extent, it embraces the circumference of the globe; it comprehends every class of people, from the most savage to the most refined, and includes every climate, from Siberia to the equator, and from the equator to the extreme south. In Spain, France, and Germany, in Holland, Sweden, Denmark, and Russia, the practice of smoking tobacco prevails amongst the rich and the poor, the learned and the gay. In the United States, smoking is often carried to a reprehensible excess. If we pass to the East, we shall find the practice almost universal. In Turkey, the pipe is perpetually in the mouth; and the most solemn conferences are generally concluded with a friendly pipe, employed like the *calumet of peace* among the Indians. In the East Indies, as well as the West, not merely all classes, but both sexes, inhale the fragrant steam. In China the habit equally prevails.

What renders this habit the more surprising is the comparatively recent period within which it has become thus extended. Two hundred and fifty or three hundred years is a short time for a habit to gain all but universal prevalence. There is no reason to doubt that America is the source from which the usage has extended to all other countries.

Tobacco is now very extensively cultivated in France and other European countries, in the Levant, and in India; but the tobacco of the United States is still very generally admitted to be decidedly superior to most others. It is much higher flavored than the tobacco of Europe; a superiority attributable in some degree, perhaps, to a different mode of treatment, but far more, it is believed, to differences of soil and climate. The tobacco crop is one that speedily exhausts all but the very best lands.

Cuba is celebrated for its tobacco, particularly its cigars. These consist of the leaves formed into small rolls, for the purpose of smoking. Havana cigars are reckoned the best. The tobacco used in Cuba by the lower classes is chiefly imported from the United States.

There has been much dispute relative to the bad effects resulting from the use of tobacco. To some constitutions it is doubtless injurious, while to others the moderate use may not be attended by bad consequences. It is, however, an idle and unnecessary habit, and one which the young ought scrupulously to avoid. An old writer sings the praises of tobacco in the following strain:

"All dainty meats I do defy
Which feed men fat as swine;
He is a frugal man indeed
That on a leaf can dine.
He needs no napkin for his hands,
His fingers' ends to wipe,
That keeps his kitchen in a box,
And roast meat in a pipe."

We cannot say much for the morality or good sense of this ditty, though we must allow it would be a very snug way of dining if we could content ourselves with so unsubstantial a dish as smoke.

TONNAGE: in commercial navigation, the number of tons burthen that a ship measures.

TOPAZ: a precious stone of different colors, generally yellow and red, found in the East Indies.

TORTOISE SHELL: the shell of the testaceous animal called a tortoise. It is much used in the manufacture of combs, snuff-boxes, &c., and in inlaying and other ornamental work. The best tortoise shell is that of the Indian Archipelago, and the finest of this quarter is obtained on the shores of the Spice Islands and New Guinea. Tortoise shells may be stained of a variety of colors, by means of the coloring drugs commonly used in dyeing, and by various metallic solutions.

TOYS include every trifling article made expressly for the amusement of children. How frivolous soever these articles may appear in the estimation of the merely casual observer, their manufacture employs many hundreds of hands, and gives bread to many families in London and its vicinity; at the same time that the demand for them occasions a considerable trade to Holland. From the latter country we procure most sorts of toys on more reasonable terms than we can afford to produce them.

TRAIN-OIL: a general name given to different sorts of fish-oil; such as whale, seal, cod-oil, &c.

TRAGACANTH: a species of gum, the produce of a thorny shrub growing in Persia, Crete, and the islands of the Levant. It is used in medicine, and often in the preparation of leather.

TUMERIC: a root brought from the Indies. It is externally grayish, and internally of a deep, lively yellow or saffron color. It used to be in considerable estimation as a medicine, but is now used only as a dye. It yields a beautiful yellow color. The Indians are accustomed to use it to color and season their food.

TURQUOISE: a precious stone in considerable estimation. Its color, which is its principal recommendation, is a beautiful celestial blue. It is principally imported from Persia.

TURPENTINE: a resinous juice which exudes from different kinds of trees, particularly the pine. The trees which are most exposed to the sun, and have the thickest barks, yield it in the greatest abundance. The *loblolly*, or old field pine, is found throughout the lower parts of the Southern states. It often exceeds eighty feet in height, and has a wide-spreading summit. The *long-leaved* pine is, perhaps, the most important of all our forest trees. Not only does it furnish all the resin, tar, pitch, and turpentine consumed in the United States, but the timber is valuable. The turpentine is the sap of this tree, obtained by making incisions into the trunk. In general, three thousand trees yield annually about seventy-five barrels of turpentine, besides twenty-five of *scrapings* or hardened turpentine. Nearly one hundred thousand barrels are exported annually to the Northern states and to Great Britain. Throughout the United States, turpentine is much used in the manufacture of yellow soap. Great quantities of spirits of turpentine are made in North Carolina, and about twenty thousand gallons are exported annually to the Northern states and to Great Britain.

TUTENAGUE: Indian zinc, or a mixed metal composed chiefly of zinc.

U.

ULTRAMARINE: a very fine blue powder, made from the blue parts of *lapis lazuli*. It has the valuable property of neither fading nor becoming tarnished on exposure to the air or a moderate heat, and on this account is highly prized by painters. Owing to its great price, it is very apt to be adulterated.

UMBER, or UMBRE: among painters, a kind of dry, dusky-colored earth, which, diluted with water, serves to make a dark-brown color.

UNDERWRITER, in England, is an insurer who *underwrites*, or subscribes his name to, policies of insurance on ships, merchandise, &c. See INSURANCE.

USQUEBAUGH: a strong compound liquor made in Ireland.

V.

VANILLA: the fruit of a species of vine extensively cultivated in Mexico. The Indians propagate it by planting cuttings at the foot of trees selected for that purpose. The aromatic pods are about eight or ten inches long, and full of a vast number of seeds, having, when properly prepared, a peculiar and delicious fragrance. It is used for mixing with and perfuming chocolate, flavoring ice-creams, &c. Vanilla is principally gathered in the intendancy of Vera Cruz, in Mexico. It is collected by the Indians, who sell it to the whites, who prepare it for market. There are four varieties of vanilla, all differing in price and excellence. The vanilla imported from Brazil is of an inferior quality. The finest Mexican vanilla is extremely high-priced.

VELLUM: a species of fine parchment.

VELVET: a rich kind of silk stuff, covered on the outside with a close, short, fine, and soft nap. Florence and Genoa are most noted for the manufacture of this article.

VENEERING: in cabinet work, where several thin slices or leaves of fine woods of different kinds are applied and fastened on a ground of some common wood.

VERDIGRIS: a kind of rust of

copper, of a beautiful bluish green color, formed from the corrosion of copper by fermented vegetables. Its taste is disagreeably metallic; and, like all the compounds into which copper enters, it is poisonous. It is extensively used by painters, and in dyeing; it is also used to some extent in medicine. The best verdigris is made at Montpelier, in France, the wines of Languedoc being particularly well suited for corroding copper.

VERJUICE: a kind of harsh austere vinegar, made of the expressed juice of the wild apple or crab. The French give this name to unripe grapes, and to the sour liquor obtained from them.

VERMICELLI: an Italian mixture, prepared of flour, cheese, yolks of eggs, sugar, and saffron; and reduced into little long pieces, or threads, by forcing it with a piston through a number of little holes in the end of a pipe made for that purpose. It is much used in Italy, and in other countries, in soups, broths, &c.

VINEGAR: a liquor which may be obtained by fermentation from all substances which contain saccharine matter. The best is procured from wine; and vast quantities are annually made in the wine counties of France. It is made in great quantities from cider in this country.

VITRIOL. Sulphate of iron, formerly called green vitriol, has a fine green color. Sulphate of copper is known by the name of blue vitriol. Oil of vitriol is generally known by the name of sulphuric acid.

There is in the island of Java a volcano called Idienne, from which the Dutch East India Company have been often supplied with sulphur for the manufacture of gunpowder. At the foot of this volcano is a vast natural manufactory of that acid commonly called oil of vitriol, although it is there largely diluted with water. It is a lake about 1,200 French feet long; the water is warm, and of a greenish white color, and charged with acid. The taste of this liquid is sour, pungent, and caustic; it kills all the fish of a river into which it flows, gives violent colics to those who drink it, and destroys all the vegetation on its banks.

W.

WAFERS, for sealing letters, are made thus: Take very fine flour, mix it with white of eggs, isinglass, and a little yeast; mingle the materials; beat them well together; spread them, the batter being made thin with gum water, on even tin plates; dry them in a stove, and then cut them out for use. To color them, tinge the paste with Brazil-wood or vermilion for red; indigo, or verditer, &c., for blue; saffron, tumeric, gamboge, &c., for yellow.

WANGHEES, sometimes called *Japan canes:* a species of cane imported from China. They should be chosen pliable, tough, round, and taper, the knots at regular distances from each other; and the heavier the better. Such as are dark colored, badly glazed, and light, should be rejected.

WATCHES: portable machines, generally of a small size and round shape, that measure and indicate the successive portions of time, having, for the most part, their motions regulated by a spiral spring. When constructed on the most approved principles, and executed in the best manner, a watch is not only an exceedingly useful, but a most admirable piece of mechanism. It has exercised the skill and invention of the most skilful mechanics, as well as some of the ablest mathematicians, for nearly three centuries. And considering the smallness of its size, its capacity of being carried about uninjured in every variety of position, the number and complexity of its movements, and the extraordinary accuracy with which it represents the successive portions of time as determined by the rotation of the earth on its axis, it is indeed a striking specimen of human ingenuity.

The watch-making business is carried on to a great extent in London; the artists of which place have attained to great excellence in this department. There are about 14,000 gold and 85,000 silver watches annually assayed at Goldsmiths' Hall, London; the aggregate value of which is, probably, not much under £1,000,000. Watches are also manufactured in great numbers at Paris, Geneva. and in Neufchatel. Paris and Geneva watches are largely exported to foreign countries, and are everywhere in high estimation, particularly among the ladies.

WATER-PROOF: a term applied to those stuffs which have undergone certain chemical or mechanical processes, and thus become impervious to moisture.

The following simple process is stated to be that employed by the Chinese for rendering cloth waterproof: Let an ounce of white wax be dissolved in one quart of spirits of turpentine, the cloth be immersed in the solution, and then suspended in the air till it be perfectly dry. The gum known by the name of India-rubber, dissolved in spirit, will also render hats, cloths, and leather impervious to wet.

WAX: a vegetable product. Several plants contain wax in such abundance as to make it worth while to extract it from them; but bees-wax is by far the most generally known. The honey is first pressed from the comb, and the wax is then melted into cakes. It has a slight odor of honey, is insipid, and of a bright yellow hue. Wax when bleached or purified is white, hard, and somewhat translucent. The usual way of preparing it is to melt the yellow wax in hot water, and press it through a strainer of fine linen; it is then poured into shallow moulds. When hardened by cooling, it is taken out, and exposed to the sun and air; it must be sprinkled now and then with water and often turned: by these means it soon becomes white. Wax is used in making candles, and for a variety of well-known purposes in the arts.

WEIGHTS AND MEASURES are used to ascertain the quantities of any article or commodity.

Weight, in a commercial sense, denotes a body, legally defined, appointed to be put in the balance against other bodies, whose momentum is required.

The word *measure*, taken in a similar sense, can require no definition. The original standards appear to have been pointed out by the size and proportions of the human frame; and these natural measures are still used, when artificial ones cannot be conveniently resorted to: thus the *fathom* of a well-proportioned man is supposed to equal his height or stature; the *pace*, one half of his stature; the *cubit* one fourth; the *foot* one sixth, and the span one eighth. The hand is reckoned one third of the foot, and the breadth of the thumb one twelfth.

Standards of weights and measures were held sacred by the ancients, and a uniformity was strictly observed in many countries of Asia. Among the Romans there was but one weight and one measure; every town and city throughout their vast empire having a standard, which was an exact copy of the archetype kept in the capitol, and therefore called *capitolina.*

In latter times, from various abuses and a diversity of usages, a variety of weights and measures prevail in the various countries of Europe, and the other parts of the world. There is, however, with few exceptions, a similarity in the systems of all countries, which seems to indicate a common origin. Thus the *foot*, which is the general unit for measures, is duodecimally divided; and the pound, which is the unit for weights, is divided either into twelve or sixteen ounces. In almost every nation there are two descriptions of weights, one for the precious metals, and the other for common articles; such are the Troy and Avoirdupois weights in England and the United States.

Standards generally signify any measure or weight of acknowledged authority, by which others of the same denomination are to be compared and adjusted. They are distinguished into arbitrary standards and invariable standards from nature. The former are universally adopted, except in France; and the latter are intended to correct or restore them, if lost.

The origin of the old standards of weight is not known with certainty; but those of linen measures may be inferred, from their names, to have been taken from some part of the human frame, as noticed above. Hence the *foot*, the *hand*, the *span*, the *nail*, the *cubit* or elbow, the *ulna*, aune, or arm, the *fathom*, the *pace*, &c. The inch, in some places, is determined by barleycorns, but in others it is called the thumb. The *finger*, too, is reckoned as two thirds of an inch.

The foot is the most general unit for measures, as the pound is for weights; and both are mostly divided into the same number of equal parts, and their divisions were anciently called by the same name, *uncia*, which signifies a twelfth part of the whole. Hence the inch was called the *uncia pedis*, and the ounce the *uncia libræ.*

As measures derived in the manner described must vary with the different sizes of men, the standards, formed of some durable substance, have been taken from the foot or arm of some distinguished person. Thus the Saxon *gyrd*, or girth, the modern yard, is said to have been adjusted by the arm of King Henry I. It is supposed that, from a similar reason, the old French foot has been called *pied de roi*, foot of the king.

WELD: a plant, which is a native of various parts of Europe. It is cultivated for the sake of its stalk, flowers, and leaves, which are employed in the dyeing of yellow. It is much used in dyeing silk and in paper-staining.

WHALEBONE: a substance of the nature of horn, adhering to the upper jaw of the whale, in thin parallel laminæ. These vary in size from three to twelve feet in length; the breadth of the largest at the thick end, where they are attached to the jaw, is about a foot. They are extremely elastic. All above six feet in length is called size-bone.

Whalebone bore anciently a very high price, when the rigid stays and the expanded hoops of our grandmothers produced an extensive demand for this commodity. It may be worth while to remark, as evincing the ignorance that at one time prevailed with respect to the whale, that, by an old feudal law of England, the *tail* of all whales belonged to the queen, as a perquisite, to furnish her majesty's wardrobe with whalebone.

WHALE FISHERY. It is probable that the inhabitants of Norway occasionally captured the whale before any other European nation engaged in this perilous pursuit. The Biscayans, however, were the first people who prosecuted the whale fishery as a regular commercial pursuit. They carried it on with great vigor and success in the twelfth, thirteenth, and fourteenth centuries. The whales captured by the Biscayans were not so large as those that are taken in the Polar seas, and are supposed to have been attracted southward in pursuit of herrings. They were not very productive of oil, but their flesh was used as an article of food, and the whalebone brought a high price.

The voyages of the Dutch and English to the Northern Ocean, in order, if possible, to discover a passage through it to India, though they failed of their main object, laid open the haunts of the whale. The companions of Barentz, who discovered Spitzbergen in 1596, and of Hudson, who soon after explored the same seas, represented to their countrymen the amazing number of whales with which they were crowded. Vessels were in consequence fitted out for the northern whale fishery by the English and Dutch, the harpooners and a part of the crew being Biscayans.

When the Europeans first began to prosecute the fishery on the coast of Spitzbergen, whales were everywhere found in vast numbers. Ignorant of the strength and stratagems of the formidable foe by whom they were now assailed, instead of betraying any symptoms of fear, they surrounded the ships and crowded all the bays; their capture was in consequence a comparatively easy task, and many were killed which it was afterwards necessary to abandon, from the ships being already full.

While fish were thus easily obtained, it was the practice to boil the blubber on shore in the north, and to fetch home only the oil and whalebone. And, perhaps, nothing can give a more vivid idea of the extent and importance of the Dutch fishery in the middle of the seventeenth century, than the fact that they constructed a considerable village, the houses of which were all previously prepared in Holland, on the isle of Amsterdam, on the northern shore of Spitzbergen, to which they gave the appropriate name of *Smeerenberg*, (from *smeeren*, to melt, and *berg*, a mountain.) This was the grand rendezvous of the Dutch whale-ships, and was amply provided with boilers, tanks, and every sort of apparatus required for preparing the oil and the bone. But this was not all. The whale-fleets were attended by a number of provision-ships, the cargoes of which were landed at Smeerenberg; which abounded during the busy season with well-furnished shops, good inns, &c.; so that many of the conveniences and enjoyments of Amsterdam were found within about eleven degrees of the pole! It is particularly mentioned that the sailors and others were every morning supplied with what a Dutchman regards as a very great luxury—*hot rolls* for breakfast. Batavia and Smeerenberg were founded nearly at the same period, and it was for a considerable time doubted whether the latter were not the most important establishment.

During the flourishing period of the Dutch fishery, the quantity of oil made in the north was so great that it could not be carried home by the whale-ships, and every year vessels were sent out in ballast to assist in importing the produce of the fishery.

For a lengthened period the Americans have prosecuted the whale fishery with greater vigor and success than perhaps any other people. They commenced it in 1690, and for about fifty years found an ample supply of fish on their own shores. But the whale having abandoned them, the American navigators entered with extraordinary ardor into the fisheries carried on in the Northern and Southern Oceans. From 1771 to 1775, Massachusetts employed annually 183 vessels, carrying 13,820 tons, in the former, and 121 vessels, carrying 14 026 tons, in the latter. Mr. Burke, in his famous speech on American affairs in 1774, adverted to this wonderful display of daring enterprise as follows:

"As to the wealth," said he, "which the colonists have drawn from the sea by their fisheries, you had all that matter fully opened at your bar. You surely thought these acquisitions of value, for they seemed to excite your envy; and yet the spirit by which that enterprising employment has been exercised ought rather, in my opinion, to have raised esteem and admiration. And pray, sir, what in the world is equal to it? Pass by the other parts, and look at the manner in which the New England people carry on the whale fishery. While we follow them among the trembling mountains of ice, and behold them penetrating into the deepest frozen recesses of Hudson's and Davis's straits; while we are looking for them beneath the Arctic circle, we hear that they have pierced into the opposite region of polar cold; that they are at the antipodes, and engaged under the frozen Serpent of the South. Falkland island, which seemed too remote and too romantic an object for the grasp of national ambition, is but a stage and resting-place for their victorious industry. Nor is the equinoctial heat more discouraging to them than the accumulated winter of both poles. We learn that, while some of them draw the line or strike the harpoon on the coast of Africa, others run the longitude and pursue their gigantic game along the coast of Brazil. No sea but what is vexed with their fisheries; no climate that is not witness of their toils. Neither the perseverance of Holland, nor the activity of France, nor the dexterous and firm sagacity of English enterprise, ever carried this most perilous mode of hardy industry to the extent to which it has been pursued by this recent people; a people who are still in the gristle, and not hardened into manhood."

The war that broke out soon after this speech was delivered checked for a while the progress of the fishery; but it was resumed with renewed vigor as soon as peace was restored. The American fishery has been principally carried on from Nantucket and New Bedford, in Massachusetts; and for a considerable time past the ships have mostly resorted to the southern seas. "Although," says Mr. Pitkin, "Great Britain has, at various times, given large bounties to her ships employed in this fishery, yet the whalemen of Nantucket and New Bedford, unprotected and unsupported by anything but their own industry and enterprise, have generally been able to meet their competitors in a foreign market."

France, which preceded the other nations of Europe in the whale-fishery, can hardly be said, for many years past, to have had any share in it. In 1784, Louis XVI. endeavored to revive it. With this view he fitted out six ships at Dunkirk on his own account, which were furnished with harpooners and a number of experienced seamen brought at a great expense from Nantucket. The adventure was more successful than could have been reasonably expected, considering the auspices under which it was carried on. Several private individuals followed the example of his majesty, and in 1790 France had about forty ships employed in the fishery. The revolutionary war destroyed every vestige of this rising trade. Since the peace, the government has made great efforts for its renewal, but hitherto without success; and it is singular, that, with the exception of an American house at Dunkirk, hardly any one has thought of sending out a ship.

WHARF: a sort of quay, constructed of wood or stone, on the margin of a roadstead or harbor, alongside of which ships or lighters are brought for the sake of being conveniently loaded or unloaded.

WHARFAGE: the fee paid for landing goods on a wharf, or for shipping them off, &c.

WHEAT: a species of bread-corn, by far the most important that is raised. We are ignorant of the country whence this valuable grain was first derived; but it was very early cultivated in Sicily. It is raised in almost every part of the temperate zones, and in some places as high as 2,000 feet above the level of the sea.

WHISKY: a spirit obtained by distillation from grain, sugar or molasses, though generally from the former.

WINDLASS, in a ship, is an instrument placed upon the deck, just abaft the foremast. It is made of a piece of timber six or eight feet long, in form of an axle-tree, whose length is placed horizontally upon two pieces of wood at the ends, and upon which it is turned about by the help of handspikes put into holes made for that purpose. This instrument serves for weighing anchors, or hoisting of any weight in or out of the ship.

WINDWARD, in the sea language, denotes that point from which the wind blows in respect of a ship: thus, windward tide is the tide which runs against the wind.

WINE: the fermented juice of the grape, or berries of the vine. The vine grows in every sort of soil; but that which is light and gravelly seems best suited for the production of fine vines. It succeeds extremely well in volcanic countries. The best wines of Italy are produced in the neighborhood of Vesuvius: the famous Tokay wine is also made in a volcanic district, as are several of the best French wines; many parts of the south of France bearing evident marks of extinct volcanoes. Hermitage is grown among the *débris* of granite rocks. The most favorable situation for a vineyard is upon a rising ground or hill facing the south-east.

The art of expressing and fermenting the juice of the grape appears to have been practised from the remotest antiquity. The sacred writings tell us that Noah planted a vineyard soon after the deluge.

There are a great variety of vines; and this circumstance, combined with differences of soil, climate, mode of preparation, &c., occasions an extreme variety in the different species of wine. But even between places immediately contiguous to each other, and where a cursory observer would hardly remark any difference, the qualities of the wines, though produced by the same species of grape, and treated in the same way, are often very different. A great deal evidently depends upon the aspect of the vineyard; and it is probable that a good deal depends on peculiarities of soil. But whatever may be the cause, it is certain that there are wines raised in a few limited districts, such as Tokay, Johannisberger, Constantia, the best Burgundy, Champagne, Claret, &c., that no art or care has hitherto succeeded in producing of equal goodness in other places.

WOAD: a plant, which is indigenous to most parts of Europe. It was extensively used from a very remote period, down to the general introduction of indigo, in the dyeing of blue. It is still cultivated to a considerable extent in France. After being bruised by machinery, to express the watery part, it is formed into balls, which ferment and fall into a dry powder, which is sold to the dyer. Woad is now seldom employed without a mixture of indigo. By itself, it is incapable of giving a bright and deep blue color; but the color which it does give is very durable.

WOOL: a kind of soft hair or down. The term is applied both to the fine hair of animals, as sheep, rabbits, some species of goats, &c., and to fine vegetable fibres, as cotton. In this article, however, the wool of sheep only is referred to—a production which has continued, from the earliest period down to the present day, to be of primary importance, having always formed the principal part of the clothing of mankind in most temperate regions.

It is customary to divide wool into two great classes—long and short wools; and these again into subordinate classes, according to the fineness of the fibre.

Short wool is used in the cloth manufacture, and is, therefore, frequently called clothing wool. It may vary in length from one to three or four inches; if it be longer it must be cut or broken to prepare it for the manufacture.

The *felting* property of wool is known to every one. The process of hat-making, for instance, depends on it entirely. The wool of which hats are made is neither spun nor woven; but locks of it, being thoroughly intermixed and compressed in warm water, cohere, and form a solid tenacious substance.

Cloth and woollen goods are made from wool possessing this property; the wool is carded, spun, woven, and then being put into the fulling mill, the process of felting takes place. The strokes of the mill make the fibres cohere; the piece subjected to the operation contracts in length and breadth, and its texture becomes more compact and uniform. This process is essential to the beauty and strength of woollen cloth. But the long wool of which stuffs and worsted goods are made is deprived of its *felting* properties. This is done by passing the wool through heated iron combs, which takes away the feathery parts of the wool, and approximates it to the nature of silk or cotton.

In clothing wool, the color of the fleece should always approach as much as possible to the purest white; because such wool is not only necessary for cloths dressed white, but for all cloths that are to be dyed bright colors, for which a clear white ground is required to give a due degree of richness and lustre.

It is supposed there are about thirty million of sheep in the kingdom of Great Britain; the wool of them, on an average, is worth about seven millions of pounds sterling the value of which is increased, by manufacturing skill and labor, to between twenty and thirty millions sterling. To this may be added five millions pounds' weight of foreign wool. This great manufacture is supposed to give employment and maintenance to more than three millions of persons, men, women, boys and girls.

Spanish wool, at least that of the merino breed, seems to be in favor, as of the finest texture. Those sheep crop the short sweet grass of the mountains, and their wool, though not so abundant, is of a more delicate quality.

The manufacture of wool in the United States is very considerable, and is yearly improving and increasing. The sheep of New England produce a wool of very excellent quality, which is woven into various kinds of fabrics. Fine broadcloth is manufactured at Lowell, and others of our manufacturing towns. We do not raise wool enough as yet for our domestic consumption, and consequently large quantities are still imported.

X.

XEBEC: a small three-masted vessel, navigated in the Mediterranean.

XYLO-BALSAMUM: the wood of the tree which bears the balm of Gilead.

Y.

YACHT: a small ship, with one deck, carrying four, eight or twelve guns, and 30 or 40 men. Yachts, in general, are from 30 to 160 tons; contrived and adorned, both withinside and without, for carrying state passengers. They answer the purposes of business, as well as pleasure, being very fast sailers.

YARDS, OF A SHIP, are those long pieces of timber which are made a little tapering at each end, and are fitted each athwart its proper mast, with the sails made fast to them, so as to be hoisted up or lowered down, as occasion serves.

YARN: wool, or flax, spun into thread, of which they weave cloth, stockings, &c.

Z.

ZAFFER: the oxyde of cobalt, employed in painting pottery-ware and cobalt of a blue color.

ZEA: a name for Indian corn or maize.

ZEDOARY: the root of a plant, which grows in Malabar, Ceylon, China, &c. The odor is fragrant, and somewhat like that of camphor. It was formerly employed in medicine, but is little used by modern practitioners.

ZINC: a metal of a brilliant white color with a shade of blue. It combines with almost all the metals, and some of its alloys are of great importance.